

Control Pipe User Guide and Menu Reference

CADD5® 5i Release 10.0

DOC40079-004

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Preface

Control Pipe User Guide and Menu Reference provides a description of the user interface and instructions for using Control Pipe procedures.

Related Documents

The following documents may be helpful as you use *Control Pipe User Guide and Menu Reference*:

- *Piping User Guide and Menu Reference*
- *Piping Specification User Guide*
- *Visualization/Preparation Reference*
- *Advance Structural Modeling User Guide and Menu Reference*
- *Explicit Modeling User Guide and Menu Reference*

Book Conventions

The following table illustrates and explains conventions used in writing about CADDs applications.

Convention	Example	Explanation
Menu selections and options	List Section option, Specify Layer field	Indicates a selection you must make from a menu or property sheet or a text field that you must fill in.
User-selected graphic location	X, d ₁ or P1	Marks a location or entity selection in graphic examples.
User input in CADDs text fields and on any command line	cvaec.hd.data.param tar -xvf /dev/rst0	Enter the text in a CADDs text field or on any command line.
System output	Binary transfer complete.	Indicates system responses in the CADDs text window or on any command line.
Variable in user input	tar -cvf /dev/rst0 filename	Replace the variable with an appropriate substitute; for example, replace filename with an actual file name.
Variable in text	tagname	Indicates a variable that requires an appropriate substitute when used in a real operation; for example, replace tagname with an actual tag name.
CADDs commands and modifiers	INSERT LINE TANTO	Shows CADDs commands and modifiers as they appear in the command line interface.
Text string	"SRFGROUPA" or 'SRFGROUPA'	Shows text strings. You must enclose text string with single or double quotation marks.
Integer	n	Supply an integer for the <i>n</i> .
Real number	x	Supply a real number for the <i>x</i> .
#	# mkdir /cdrom	Indicates the root (superuser) prompt on command lines.
%	% rlogin remote_system_name -l root	Indicates the C shell prompt on command lines.
\$	\$ rlogin remote_system_name -l root	Indicates the Bourne shell prompt on command lines.

Window Managers and the User Interface

According to the window manager that you use, the look and feel of the user interface in CADDs can change. Refer to the following table:

Look and Feel of User Interface Elements

User Interface Element	Common Desktop Environment (CDE) on Solaris, HP, DEC, and IBM	Window Manager Other Than CDE on Solaris, HP, DEC, IBM, SGI, and NT
Option button	ON — Round, filled in the center OFF — Round, empty	ON — Diamond, filled OFF — Diamond, empty
Toggle key	ON — Square with a check mark OFF — Square, empty	ON — Square, filled OFF — Square, empty

Online User Documentation

Online documentation for each book is provided in HTML if the documentation CD-ROM is installed. You can view the online documentation in the following ways:

- From an HTML browser
- From the Information Access button on the CADDs desktop or the Local Data Manager (LDM)

Please note: The LDM is valid only for standalone CADDs.

You can also view the online documentation directly from the CD-ROM without installing it.

From an HTML Browser:

1. Navigate to the directory where the documents are installed. For example,
 /usr/apl/cadds/data/html/htmldoc/ (UNIX)
 Drive:\usr\apl\cadds\data\html\htmldoc\ (Windows NT)
2. Click `mainmenu.html`. A list of available CADDs documentation appears.
3. Click the book title you want to view.

From the Information Access Button on the CADDs Desktop or LDM:

1. Start CADDs.
2. Choose Information Access, the *i* button, in the top-left corner of the CADDs desktop or the LDM.
3. Choose DOCUMENTATION. A list of available CADDs documentation appears.
4. Click the book title you want to view.

From the Documentation CD-ROM:

1. Mount the documentation CD-ROM.
2. Point your browser to:
CDROM_mount_point/html/doc/mainmenu.html (UNIX)
CDROM_Drive:\html\doc\mainmenu.html (Windows NT)

Online Command Help

You can view the online command help directly from the CADDs desktop in the following ways:

- From the Information Access button on the CADDs desktop or the LDM
- From the command line

From the Information Access Button on the CADDs Desktop or LDM:

1. Start CADDs.
2. Choose Information Access, the *i* button, in the top-left corner of the CADDs desktop or the LDM.
3. Choose COMMAND HELP. The Command Help property sheet opens displaying a list of verb-noun combinations of commands.

From the Command Line: Type the exclamation mark (!) to display online documentation before typing the verb-noun combination as follows:

```
#01#!INSERT LINE
```

Printing Documentation

A PDF (Portable Document Format) file is included on the CD-ROM for each online book. See the first page of each online book for the document number referenced in the PDF file name. Check with your system administrator if you need more information.

You must have Acrobat Reader installed to view and print PDF files.

The default documentation directories are:

- /usr/apl/cadds/data/html/pdf/doc_number.pdf (UNIX)
- CDROM_Drive:\usr\apl\cadds\data\html\pdf\doc_number.pdf (Windows NT)

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- Fill out and mail the PTC Documentation Survey located in the *PTC Customer Service Guide*.

Overview of the Control Pipe

This chapter familiarizes you with the Control Pipe graphical interface and tells you how to use Control Pipe options, which are available from the CADDSS Explicit environment.

- Introduction
- Terms and Definitions
- Accessing Control Pipe
- Control Pipe Environment
- Accessing Control Pipe Setup Options
- Specifying Control Pipe Parameters
- Accessing the Schematic Task Set Options
- Accessing the Modeling Task Set Options
- Accessing Control Pipe Report Options

Introduction

Control Pipe models the small diameter pipes (control pipes) used for the transmission of hydraulic or pneumatic media in Piping, HVAC, instrumentation, and machine and valve control systems.

Using Control Pipe you can:

- Specify control pipe schematic design or modeling defaults
- Insert control pipe passageways, fittings, and passageway supports
- Route control pipes
- Modify control pipes
- Delete control pipe passageway supports, passageways, and pipe fittings
- Generate cross sections of passageways
- Change graphical display
- Generate control pipe reports
- Generate control pipe text labels
- Create detailed drawings of passageway items
- Generate external control pipe database

Please note: The Control Pipe features are context-sensitive; that is, they are available in a specific environment and depend on the active drawings and parts.

Terms and Definitions

The various terms used in this book are defined below.

Control Pipe

A small diameter pipe or metal tube (usually from 4 mm to 16 mm in diameter) used to transmit hydraulic or pneumatic media in Piping, HVAC, instrumentation, and machine and valve control systems. These pipes are commonly found onboard ships, offshore platforms, and chemical or petrochemical plants.

Control Pipe Fittings

A valve, tee, coupling, or elbow on the control pipe.

Control Pipe Label

A graphical display, in text label form, of information associated with a set of control pipes routed along the passageway.

Control Pipe Tag

An identifier or mnemonic used to associate a single control pipe or set of control pipes routed along the passageway. Control Pipe stores the tag as part of the control pipe information on the passageway. You can input the control pipe tag while routing the control pipes along the passageway. If you do not specify a tag, the software generates a unique tag.

Destination

Destination is the termination of a control pipe. It can be either a nodal figure cnode representing a piece of equipment, or a standalone cnode.

MCT

A group of control pipes, usually contained in a PVC or Metal outer jacket, in various configurations of multiple cores or control pipes per MCT.

Passageway

A conceptual routing, represented by a single nodal line. The required intelligence for multiple control pipe or multiple MCT modeling, including reporting, database generation, and drawing productions is stored on the nodal line.

In general, passageways are represented by nodal lines and cnodes in both schematic and modeling modes. If one does not exist, a passageway is automatically routed using the Route Control Pipe option at the specified locations.

Passageway Fittings

A penetration, strap, cover, bend, or support on the passageway.

Passageway Label

A label associated with the nodal line that represents the passageway. The passageway label is used to identify the passageway in various modeling commands. A passageway label cannot exceed 40 characters.

Section Type

A design parameter input while specifying the supporting structure of the passageway. Section type indicates the control pipe configuration on the passageway. There are predefined section types that have assigned names.

Source

Source is the origin of a control pipe. It can be either a nodal figure cnode representing a piece of equipment, or a standalone cnode.

Destination

Destination is the termination of a control pipe. It can either be a nodal figure cnode representing a piece of equipment, or a standalone cnode.

Accessing Control Pipe

Access the Control Pipe options from the Explicit environment of CADD5. Enter the Control Pipe environment either from the Local Data Manager (LDM) menu or directly from the command prompt without entering CADD5.

Using the Local Data Manager Menu

You can enter the Control Pipe environment from the Local Data Manager in the following ways:

- Issue the command ENTER CPIPE on the command line,
or
- Click in the Env. Group field in the Activate New Part and Drawing property sheet. Choose CONTROL PIPE as the environment group from the pull down menu that appears.

ANALYSIS
PLASTICS
STRESS
SYSTEMS
THERMAL
ENG. RECO.
CONTROL PIPE
ELEC CABEL
HARNES5/EXP
HARNES5/PAR
HVAC
PIPING/EXP
PIPING/PAR
STRUCTURAL
SUPPORTS
Q. A.
DESIGN VER.
DMIS
INSPECTION
PROGRAMMING

The Env.Group field changes automatically to ENG.PROD and the environment changes to CONTROL PIPE.

Activate New Part and Drawing

Part Name:

Drawing : A

Form : C-1view Draw A

Model Units:

☐	A-4view Draw A	☐	In
☐	B-4view Draw A	☐	Ft
☐	C-1view Draw A	☐	Mi
☐	C-4view Draw A	☐	Mm
☐	D-1view Draw A	☐	Cm
☐	D-4view Draw A	☐	M
☐	E-1view Draw A	☐	Km
☐	E-4view Draw A	☐	
☐	F-1view Draw A	☐	
☐	F-4view Draw A	☐	
☐	A-1view Draw A	☐	

Env. Group : ENG. PROD.

Environment: CONTROL PIPE

Apply Reset Cancel

If the part already exists, click on the part and choose CONTROL PIPE as the environment group. The Env.Group changes automatically to ENG.PROD and the environment changes to CONTROL PIPE.

Accessing Control Pipe Options Without the LDM

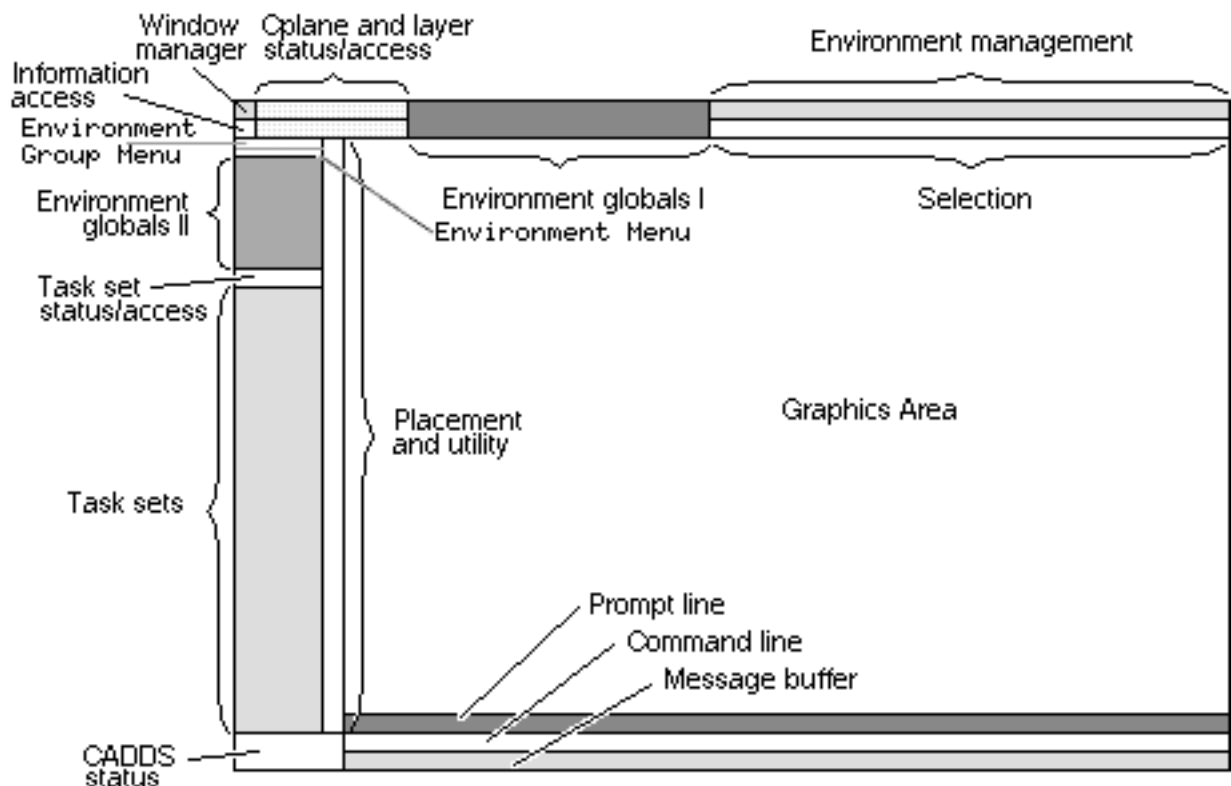
Access the various Control Pipe options without using the Local Data Manager (LDM) in the following way:

1. Invoke CADD5 directly without the LDM by issuing the following command:
CADD55 -EXPLICIT
2. Activate a new or an existing Control Pipe model.
3. Access the various Control Pipe options using the following menu areas:

Control Pipe Environment

The CADDs explicit environment has four menu areas.

- Environment Access menu
- Environment Globals
- Environment Management menu
- Task Set Access menu



You access the CADDs Control Pipe package from the CADDs Environment Access menu. You can then choose one of the various Control Pipe options from the:

- Environment Management menu
- Task Set menu
- Environment Globals I menu

Environment Access Menu

Use the Environment Access menu, which provides access to the various CADDs application environments, to access the CADDs Control Pipe environment.

Environment Management Menu

Use the Environment Management menu, which provides access to the various CADDs application environment management commands, to access the CADDs Control Pipe Parameter Setup command palette.

Task Set Menu

Use the Task Set menu to access either of the following Control Pipe modeling options:

- Schematic (default)
- Modeling

The corresponding task set is activated.

Environment Globals 1 Menu

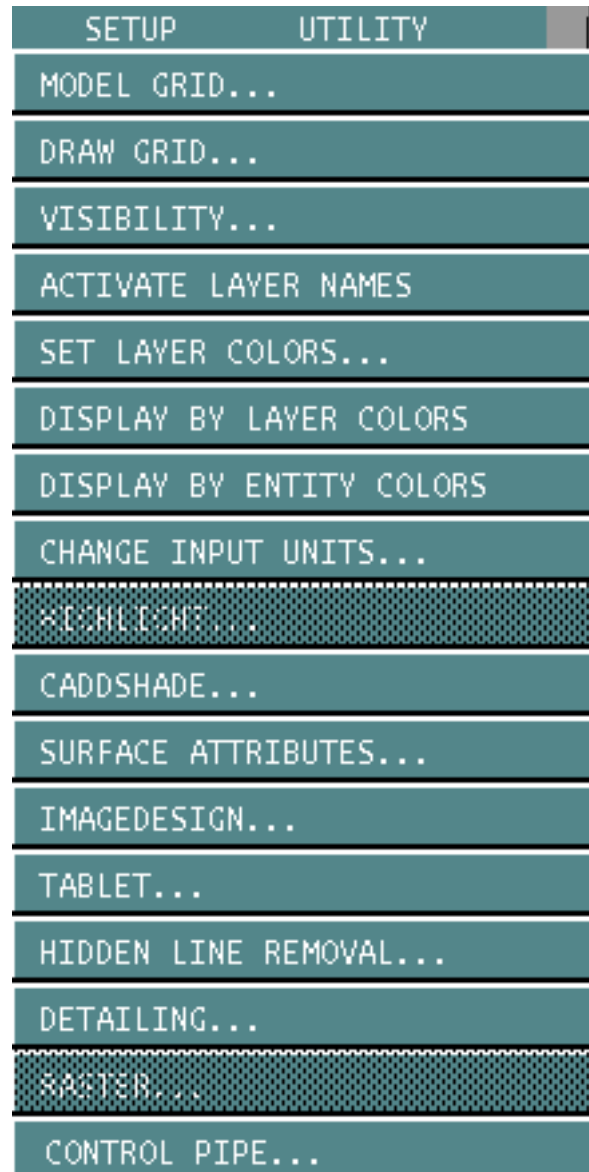
The Environment Globals 1 menu provides the report option for accessing the Control Pipe Report command palette.

Accessing Control Pipe Setup Options

To access the CADDs Control Pipe Parameter Setup command palette, from the Environment Management menu:

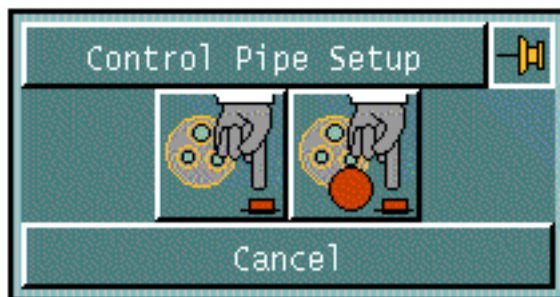
1. Choose the Setup option from the top bar of the Environment Management menu.

The Setup pulldown menu appears.

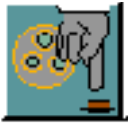


2. Choose Control Pipe on the pulldown menu.

The Control Pipe Setup command palette appears.



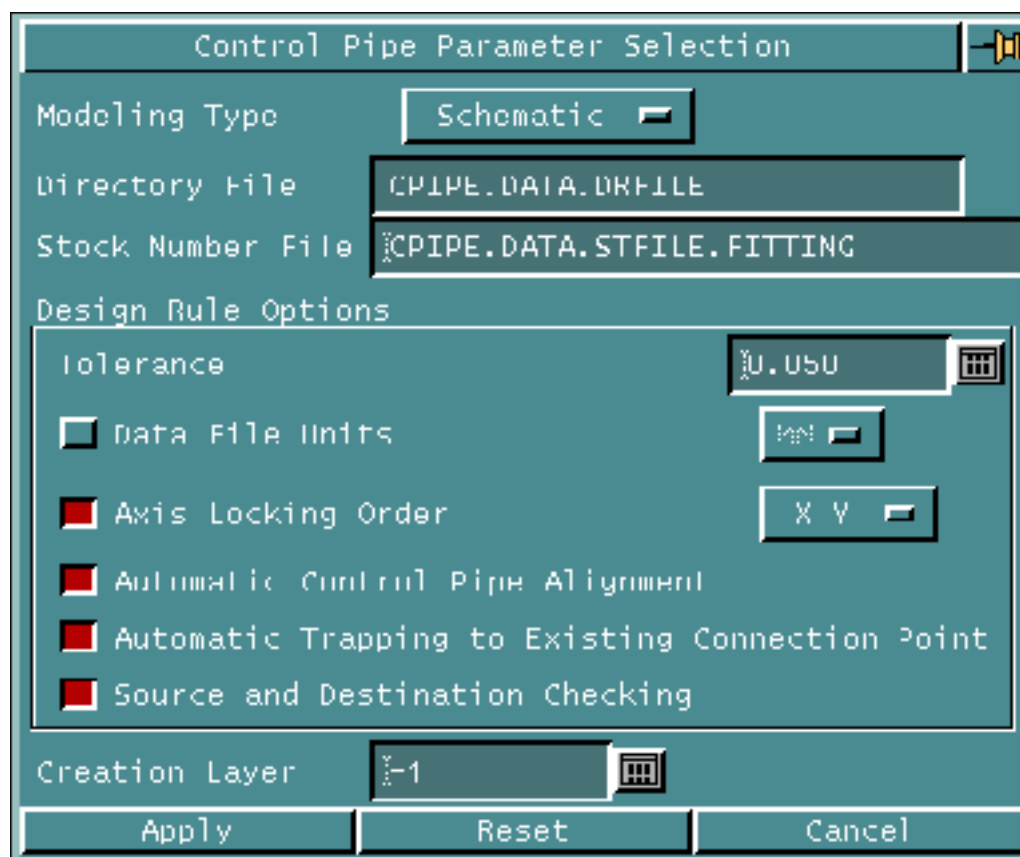
Specifying Control Pipe Parameters



Use this menu option to choose defaults for various control pipe parameters.

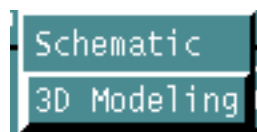
1. From the Environment Management menu, choose the Setup option.
2. Choose the Control Pipe option on the pulldown menu.
3. Choose the Control Pipe Selection Parameters option on the Setup command palette.

The Control Pipe Parameter Selection property sheet appears.



4. Choose the Modeling Type option list button.

The Modeling Type option list which appears.



5. Choose the Data File Units toggle and press the option list button.

The Data File Units option list appears.



6. Choose the Axis Locking Order toggle and press option list button.

The Axis Locking Order option list appears.



7. Choose all control pipes, or multicore tube pipes only.
8. Choose the number of MCTs.
9. Enter the appropriate information (source, destination, material, diameter, thickness, material) in the appropriate fields.
10. Choose control pipes from the run time list.
11. Choose the control pipe selection method.
12. Choose the Apply button.

Resetting Control Pipe Parameters (Direct Action)



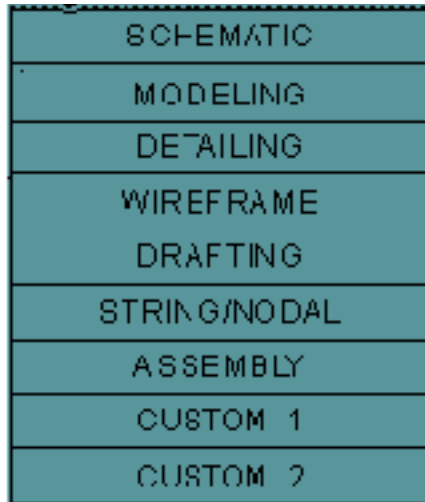
Use this menu option to reset the default values of the control pipe parameters.

Choose the Reset Control Pipe Parameters option. The parameters are reset to the default settings.

Accessing the Schematic Task Set Options

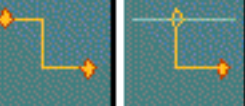
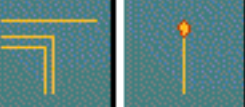
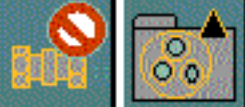
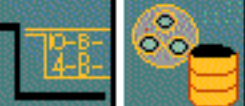
To access the CADDs Control Pipe Schematic Task Set options:

1. Choose the MODELING option from the Task Set Access menu to open the .
Task Set Access pulldown menu.



2. Choose the Schematic option.

The Schematic task set menu appears.

SCHEMATIC		
INSERT NFIGURE COMMAND PALETTE		RELATE / UNRELATE NFIGURE COMMAND PALET
ROUTE CPIPE MENU		ROUTE CPIPE BRANCH MENU
ROUTE CPIPE SEGMENT MENU		ROUTE PASSAGEWAY MENU
MARK ENTITY CLEAR COMMAND		
INSERT CPFITTING MENU		INSERT CPFITTING SAME : COMMAND
DISPLAY CPIPE MENU		DISPLAY CPIPE SLINE : COMMAND
DELETE CPASSAGEWAY MENU		DELETE CPASSAGEWAY : COMMAND
DELETE CPFITTING : COMMAND		MODIFY CPIPE COMMAND PALETTE
GENERATE CPLABEL MENU		GENERATE CPDATABASE MENU

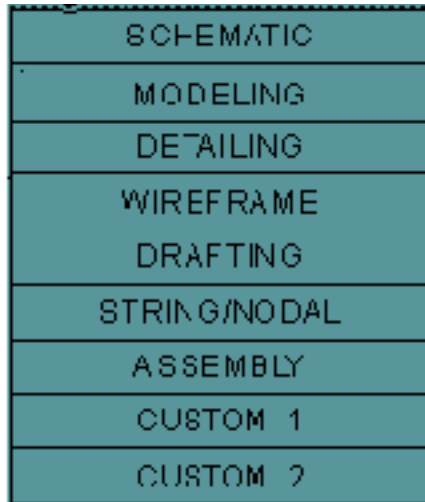
After you have chosen the Schematic task set, you are ready to design schematics of your schematic control pipes.

Accessing the Modeling Task Set Options

To access the CADDs Control Pipe Modeling Task Set options:

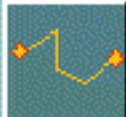
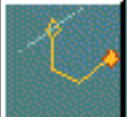
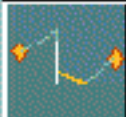
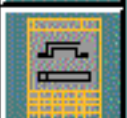
1. Choose the Modeling option from the Task Set Access menu.

The Task Set Access pulldown menu appears.



2. Choose the Modeling option.

The Modeling task set menu appears.

	MODELING		
INSERT NFIGURE COMMAND PALETTE			RELATE / UNRELATE NFIGURE COMMAND PALETTE
ROUTE CPIPE MENU			ROUTE CPIPE BRANCH MENU
ROUTE CPIPE SEGMENT MENU			ROUTE PASSAGEWAY MENU
MARK ENTITY CLEAR COMMAND			INSERT CPFITTING COMMAND PALETTE
INSERT CPSUPPORT MENU			INSERT CPSUPPORT SAME : COMMAND
DELETE CPPASSAGEWAY MENU			DELETE CPPASSAGEWAY : COMMAND
DELETE CPFITTING COMMAND PALETTE			DELETE CPFITTING : COMMAND
DELETE CPSUPPORT MENU			DELETE CPSUPPORT : COMMAND
MODIFY CPIPE COMMAND PALETTE			
GENERATE CPLABEL MENU			GENERATE CPSECTION MENU
GENERATE CPDATABASE MENU			DRAW CPIPE MENU

After you have chosen the Modeling task set, you are ready to design your 3D control pipes.

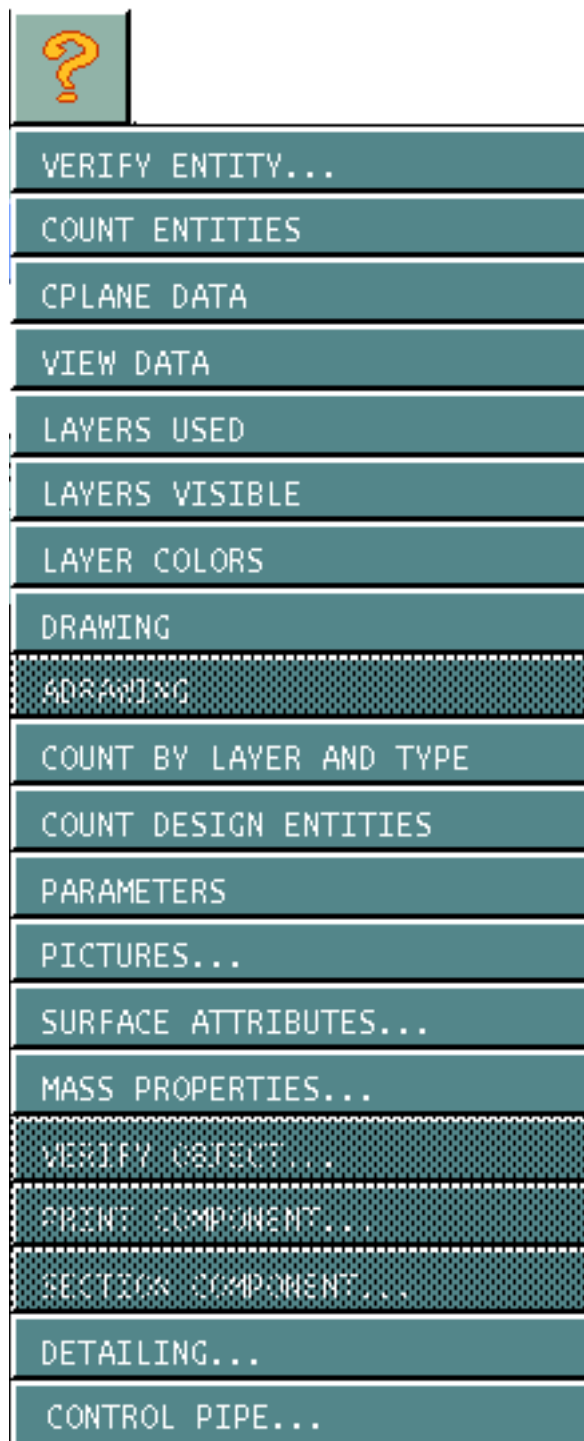
Accessing Control Pipe Report Options

To access the CADDs Control Pipe report options from the Environment Global I menu area:



1. Choose the Report option from the Environment Global I menu.

The Report pulldown menu appears.



2. Choose the Control Pipe option to bring up the CADDs Control Pipe Reports command palette.

The Control Pipe Reports command palette appears as shown below.



This chapter describes the aspects of control pipe modeling in schematic design. The Schematic option on the Task Set Access menu displays the Schematic Task Set.

- Schematic Task Set Options
- Inserting Nfigures
- Changing NFigure Relationships
- Routing Schematic Control Pipes
- Routing a Branch Control Pipe
- Routing Schematic Control Pipe Segments
- Routing a Passageway Without Control Pipes
- Clearing Control Pipe Marking
- Inserting Control Pipe Fittings
- Inserting an Identical Control Pipe Fitting
- Displaying Control Pipes
- Changing Control Pipe Display Mode Back to Single Line (Direct Action)
- Deleting Control Pipe Passageways
- Deleting a Schematic Control Pipe Passageway (Direct Action)
- Deleting Selected Control Pipe Fittings (Direct Action)
- Modifying Control Pipes
- Generating Control Pipe Labels
- Writing Control Pipe Attributes to an External Database
- Generating Control Pipe Reports

Schematic Task Set Options

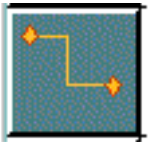
The 17 icons on the Schematic Task Set display the property sheets you use in schematic control pipe modeling. For details on accessing the options on the Schematic task set menu refer to “Accessing the Schematic Task Set Options” on page 1-13.



Insert Nfigures: Inserts nfigs, sfigs, and pfigs. This icon displays the Insert Nfigure command palette, which allows you to insert, construct, and create figures.



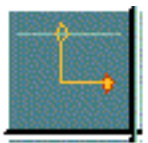
Change Nfigure Relationships: Makes or breaks relationships between two nfigs, or between an nfig and a tnode. This icon displays the Change Figure Relationships command palette.



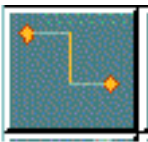
Route Control Pipes: Routes schematic control pipes. This icon displays the Schematic Control Pipe Routing property sheet, where you can indicate control pipe specifications and details.

You can input the quantity, diameter, thickness, material and general description of the control pipe to be routed through the various options on the property sheet. A scalar entity is created for each control pipe. The data of the control pipe is stored in this scalar entity. This data is available for functions such as design and verification, reporting, control pipe label generation, and drawing production. This scalar entity should have the STOCKNO property.

Please note: STOCKNO stores the stock number of the control pipe. This value is got from the field STK# of the control pipe auto-selection file.



Route Control Pipe Branching: Inserts a control pipe branching. This icon displays the Schematic Branch Control Pipe Routing property sheet.



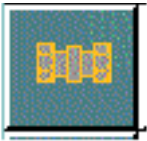
Route Control Pipe Segments: Routes schematic control pipes. This icon displays the Schematic Control Pipe Segment Routing property sheet.



Route Passageway without Control Pipes: Routes a passageway without control pipes. This icon displays Schematic Passageway Routing property sheet



Clear Control Pipe Markings (direct action): Clears the marking of a recently routed control pipe.



Insert Control Pipe Fittings: Inserts control pipe general fittings in existing control pipes. This icon displays the Schematic Control Pipe Fitting Insertion property sheet.



Insert Identical Control Fittings (direct action): Inserts a control pipe fitting identical to an existing control pipe fitting. The system prompts you to select an existing control pipe fitting.



Display Control Pipes: Changes the display mode of control pipe passageways. This icon displays the Display Control Pipes property sheet.



Change Control Pipe Display to Single Line (direct action): Changes the display mode of a selected control pipe passageway back to a single nodal line representation from either multiple line or fill display mode. The system prompts you to select a control pipe.



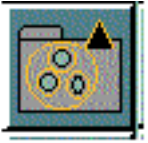
Delete Control Pipe Passageways (with options): Deletes either an entire control pipe passageway or branches of a control pipe passageway or individual segments of a control pipe passageway as per your specification. All control pipes along the identified passageway will be either deleted or rolled back. This icon displays the Control Pipe Passageway Deletion property sheet.



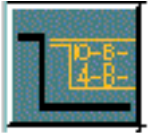
Delete Control Pipe Passageways (direct action): Deletes a selected control pipe passageway. The system prompts you to select the passageway.



Delete Selected Control Pipe Fittings (direct action): Deletes a selected control pipe fitting. The system prompts you to select the fitting to be deleted.



Modify Control Pipes: Modifies the control pipe parameters and changes passageway labels and layers. This icon displays the Modify Control Pipe command palette.



Generate Control Pipe Labels: Generates control pipe labels. This icon displays the Schematic Control Pipe Label Generation property sheet.



Write Control Pipe Attributes to an External Database: Extracts various control pipe attributes from the CADDs database and writes them to an external database. This icon displays the Control Pipe External Database Generation property sheet.

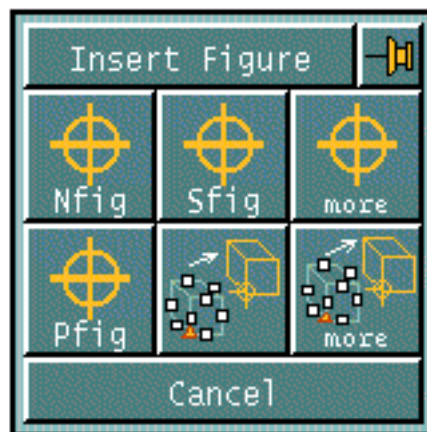
Inserting Nfigures



Use this menu option to display a command palette that enables the insertion of existing Nfigures (nodal figures), Sfigures (sub figures) and Pfigures (part figures) into an active part. A figure is a copy of an existing part that you can use to duplicate and standardize information in other parts. Please refer the Figures chapter in the *Nodal Construction User Guide and Menu Reference* for more information about this option.

1. Choose the Insert Figure option.

The Insert NFigure command palette appears.



2. To insert or create a single figure, choose one of the direct action icons labeled in the above figure and enter a figure name.



3. Choose this option to insert figures with options.



4. Choose this option to display the property sheet to construct local Nfigures from selected entities..

The Insert Figure property sheet appears.



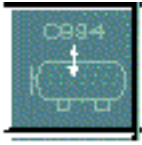
5. Choose a figure type.
6. Enter a figure name in the Name field.
7. Choose the desired remaining parameters.
8. Choose the Apply button.
9. To construct figures with options, choose the Construct Figure with Options icon.

The Construct Figure property sheet appears.



10. Choose a figure type.
11. Enter a figure name in the Name field.
12. Choose the desired remaining parameters.
13. Choose the Apply button.

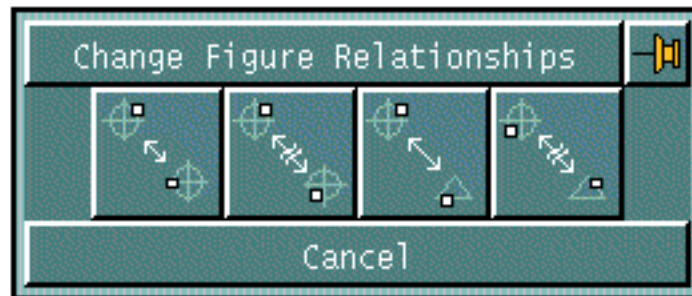
Changing NFigure Relationships



Use this menu option to change relationships between (relate or unrelate) nfigs and nfigs and tnodes.

1. Choose the Change Nfigure Relationships option.

The Change Figure Relationships command palette appears.



Make a Relationship Between Nfigs



Use this menu option to make a relationship between two nfigs.

1. Choose the Make a Relationship Between Nfigs option.

The system prompts you to select the nfig you want to relate.

2. Select the nfig you want to relate.

The relationship between nfigs is established.

Break a Relationship Between Nfigs



Use this menu option to dissolve a relationship between two nfigs.

1. Choose the Dissolve a Relationship Between Nfigs option.

The system prompts you to select the nfigs you want to unrelate.

2. Select the nfigs you want to relate.

The relationship between nfigs is dissolved.

Make a Relationship Between an Nfig and a Tnode



Use this menu option to make a relationship between an nfig and a tnode.

1. Choose the Make a Relationship Between an Nfig and a Tnode option.
The system prompts you to select the nfig and tnode you want to relate.
2. Select the nfig and tnode you want to relate.
The relationship between the nfig and tnode is established.

Break a Relationship Between Nfigs



Use this menu option to dissolve a relationship between an nfig and a tnode.

1. Choose the Dissolve a Relationship Between an Nfig and a Tnode option.
The system prompts you to select the nfig and tnode you want to unrelate.
2. Select the nfig and tnode you want to relate.
3. The relationship between the nfig and tnode is dissolved.

Routing Schematic Control Pipes



Use this menu option to route schematic control pipes.

1. Choose the Route Control Pipe option.

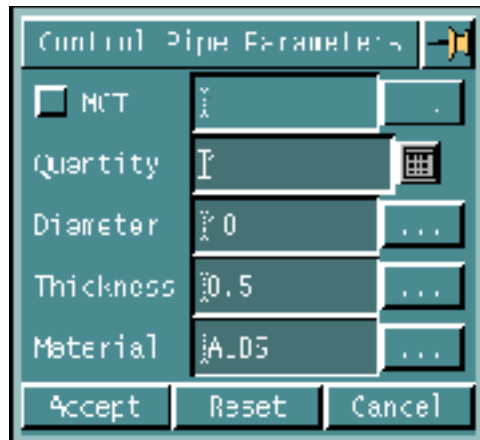
The Schematic Control Pipe Routing property sheet appears.

2. Choose the Description List toggle and press editor button.

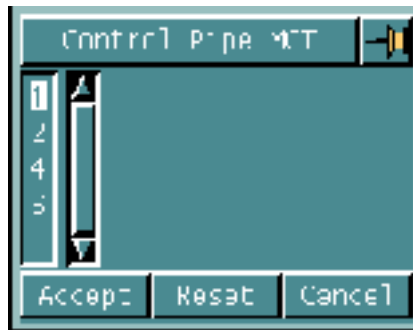
The Control Pipe Description run time list appears.

MCT	DIA	THK	MATL
1	3	0.0	COPPER
1	3	0.5	S374
1	3	0.7	CUNI
1	3	1.0	S374
1	3	1.0	COPPER

3. Choose the Specify Parameters toggle and press Options pushbutton.
The Control Pipe Parameters menu appears.



4. Choose the MCT toggle and press the editor button.
The Control Pipe MCT run time list appears.



5. Choose the Diameter editor button .
The Control Pipe Diameter run time list appears.



6. Choose a diameter and choose the Accept button.
7. On the Control Pipe Parameters, choose the Thickness editor button.

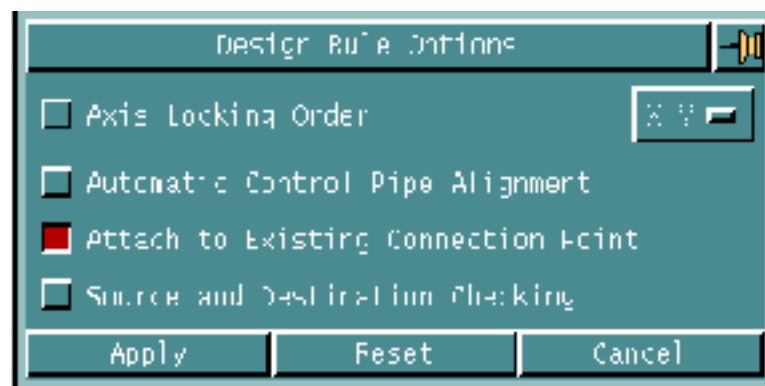
The Control Pipe Thickness run time list appears.



8. Choose a thickness and choose the Accept button.
9. On the Control Pipe Parameters, choose the Material editor button.
The Control Pipe Material run time list appears.



10. Choose a material and choose the Accept button.
11. On the Schematic Control Pipe Routing property sheet, choose the Design Rule Checking toggle and press the Options pushbutton.
The Design Rule Options menu appears.



Please note: When the Design Rule Checking toggle is not chosen no check is made to ensure that the pipes are routed between the source and destination.

12. Choose the Axis Locking Order toggle and then the Options pushbutton.

The Axis Locking Order option list appears.



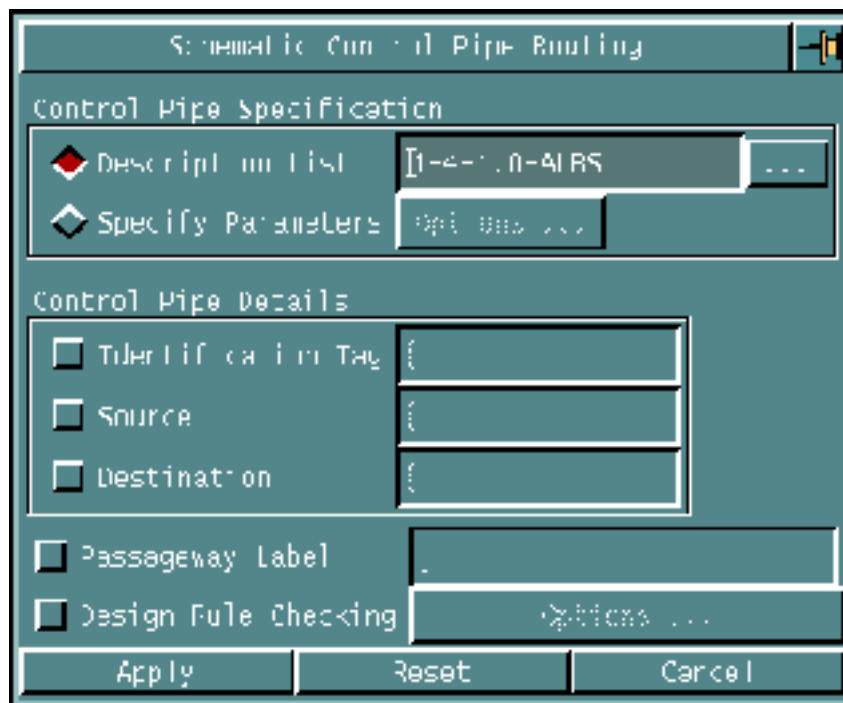
13. On the Control Pipe Parameters menu, choose the Accept button.
14. On the Schematic Control Pipe Routing property sheet, choose the Apply button.

Example 1

This example routes a new control pipe passageway between a selected source and destination, and along a selected path. The passageway will have two control pipes with diameter of 12mm, a wall thickness of 1.2mm, material CUT, and tag CP1. The passageway label will be stored as nodal text attached to the passageway nline as PW1.

Perform the following steps:

1. Choose the Route Control Pipe option from the Schematic Task Set.
2. The Route Control Pipe property sheet appears.



3. Enter Pw1 in the Pwlabel field.
4. Enter 2 in the Quantity field.
5. Enter 12 in the Diameter field.
6. Enter 1.2 in the Thickness field.
7. Enter CUT in the Material field.
8. Enter CP1 in the Tag field.
9. Choose the Apply button.
10. In response to the following prompt on the screen,

```
ROUTE CPIPE PWLABEL PW1 QUANTITY 2 DIAMETER 12 THICKNESS 1.2
MATERIAL CUT TAG CP1 : Select Source MODEL ent
```

 select location d1, as shown in the figure below.
11. In response to the following prompt on the screen,

```
ROUTE CPIPE PWLABEL PW1 QUANTITY 2 DIAMETER 12 THICKNESS 1.2
MATERIAL CUT TAG CP1 : Select Source MODEL ent D1 ; Select
Path MODEL loc
```

 select location d2, as shown in the figure below.
12. In response to the following prompt on the screen,

```
ROUTE CPIPE PWLABEL PW1 QUANTITY 2 DIAMETER 12 THICKNESS 1.2
MATERIAL CUT TAG CP1 : Select Source MODEL ent D1 ; Select
Path MODEL loc D2 ; Select Destination MODEL ent
```

 select location d3, as shown in the following figure.

BEFORE

s1  d1

 d2

 d3
D1

A new control pipe passageway is created between the selected source (d1) and destination (d3), along the selected path (d2).

AFTER



Example 2

This example routes a new control pipe passageway between selected points d1 and d2, d3 and d4. Since a passageway between d2 and d3 already exists, no new passageway is created between these two locations. The passageway between S2 and D2 will have two control pipes with diameter of 12mm, wall thickness of 1.2mm, material CUT and tag CP2.

Perform the following steps:

1. Choose the Route Control Pipe option from the Schematic Task Set.

The Schematic Control Pipe Routing property sheet appears.

2. In the Route Control Pipe property sheet, enter 2 as the quantity in the Quantity field.
3. Enter 12 as the diameter in the Diameter field.
4. Enter 1.2 as the wall thickness in the Thickness field.
5. Enter CUT as the material in the Material field.
6. Enter CP2 as the tag name in the Tag field.
7. Choose the Apply button.
8. In response to the following prompt on the screen,

```
ROUTE CPIPE QUANTITY 2 DIAMETER 12 THICKNESS 1.2 MATERIAL CUT TAG
CP2 : Select Source MODEL ent
```

 select location d1 as shown in the following figure.
9. In response to the following prompt on the screen,

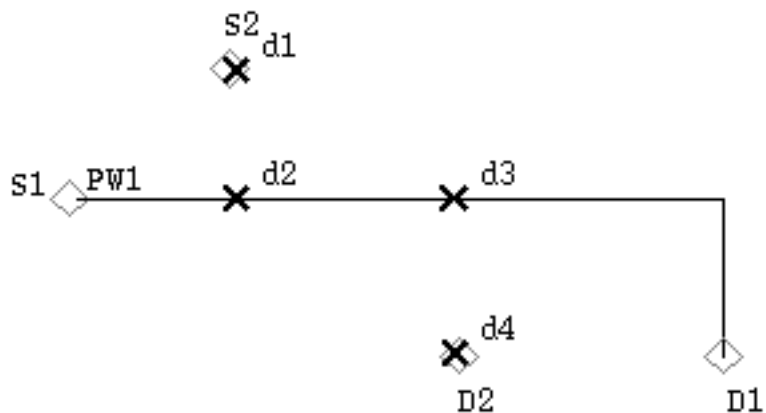
```
ROUTE CPIPE QUANTITY 2 DIAMETER 12 THICKNESS 1.2 MATERIAL CUT TAG
CP2 : Select Source MODEL ent d1 Select Path MODEL loc
```

 select locations d2 and d3 as shown in the following figure.
10. In response to the following prompt on the screen,

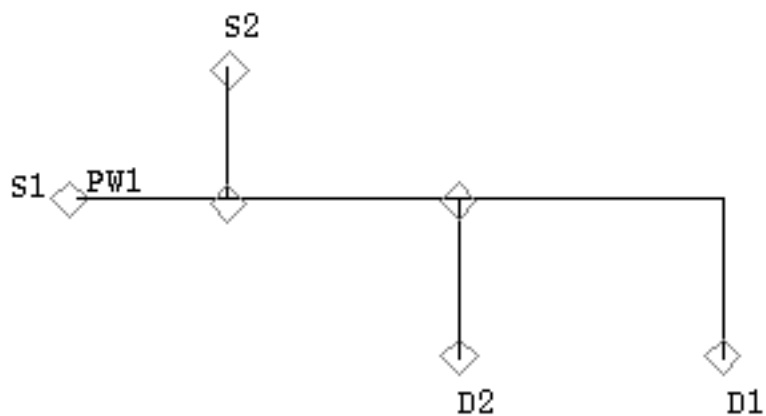
ROUTE CPIPE QUANTITY 2 DIAMETER 12 THICKNESS 1.2 MATERIAL CUT TAG
CP2 : Select Source MODEL ent d1 Select Path MODEL loc d2 d3 ;
Select Destination MODEL ent

select location d4 as shown in the following figure.

BEFORE



AFTER



Two new control pipe passageway segments are routed between points d1 and d2, d3, and d4.

Routing a Branch Control Pipe



Use this menu option to route a branch control pipe.

1. Choose the Insert Control Pipe Branching option.

The Schematic Branch Control Pipe Routing property sheet appears.

Schematic Branch Control Pipe Routing

☐ Main Control Pipe Tag ()

Control Pipe Specification

☒ Use Main Control Pipe Parameters

☒ Description List (0 4 1.0 9LOS) ...

☒ Specify MCT (0) ...

☒ Specify Parameters (Options ...)

Control Pipe Details

☐ Identification Tag ()

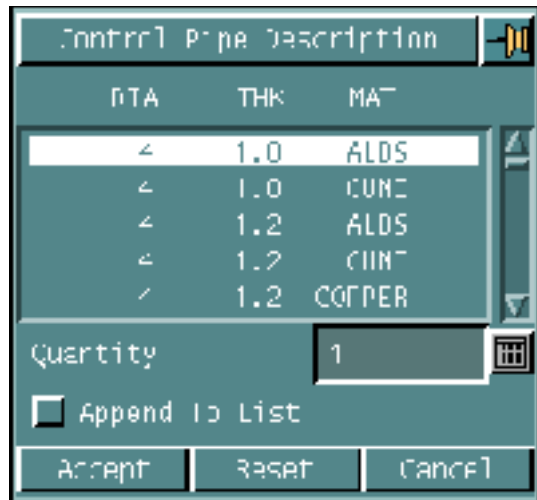
☐ Destination ()

☐ Design Rule Checking (Options ...)

Apply Reset Cancel

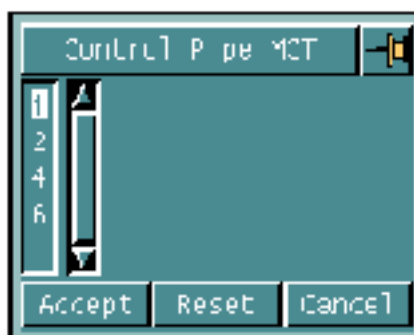
2. Choose the Description List toggle and press the editor button.

The Control Pipe Description run time list appears.



3. Choose the MCT toggle and then the editor button.

The Control Pipe MCT run time list appears.



4. Choose the Specify Parameters toggle and the Options pushbutton

The Control Pipe Parameter menu appears.



5. Choose the Diameter editor button.

The Control Pipe Diameter run time list appears.



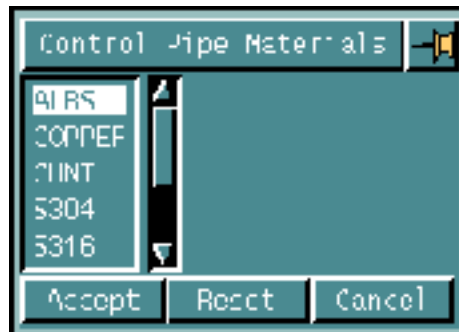
6. Choose a diameter and choose the Accept button.
7. On the Control Pipe Parameters, choose the Thickness editor button.

The Control Pipe Thickness run time list appears.



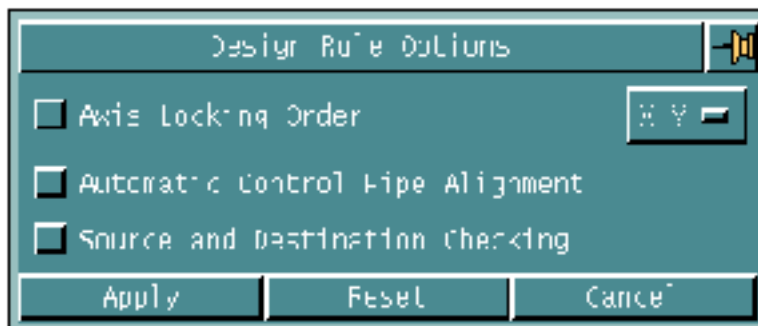
8. Choose a thickness and choose the Accept button.
9. On the Control Pipe Parameters menu, choose the Material editor button.

The Control Pipe Material run time list appears.



10. Choose a material and choose the Accept button.
11. On the Schematic Branch Control Pipe Routing property sheet, choose the Design Rule Checking toggle.

The Design Rule Options menu appears.



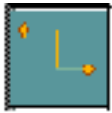
12. Choose the Axis Locking Order toggle.

The Axis Locking Order option list appears.



13. On the Control Pipe Parameters menu, choose the Accept button.
14. On the Schematic Branch Control Pipe Routing property sheet, choose the Apply button.

Routing Schematic Control Pipe Segments



Use this menu option to route control pipes along a selected passageway segment.

1. Choose the Route Control Pipe Segment option.

The Schematic Control Pipe Segment Routing property sheet appears.

2. Choose the Description List toggle and the editor button.

The Control Pipe Description run time list appears.

MCT	DIA	THK	MATL
1	3	0.0	COPPER
1	3	0.5	S304
1	3	0.7	CJ4I
1	3	1.0	S304
1	3	1.0	COPPER

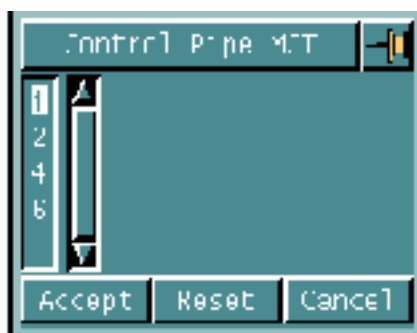
3. Choose the Specify Parameters toggle and press Options pushbutton.

The Control Pipe Parameters menu appears.



4. Choose the MCT toggle and press the editor button.

The Control Pipe MCT run time list appears.



5. On the Control Pipe Parameters menu, choose the Diameter editor button.

The Control Pipe Diameter run time list appears.

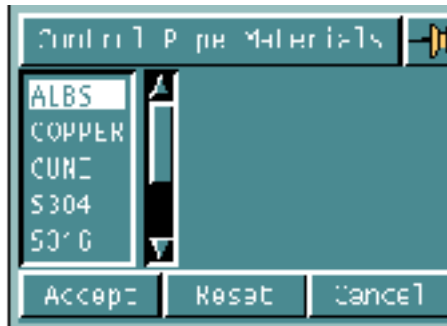


6. Choose a diameter and choose the Accept button.
7. On the Changing Control Pipe Parameters, choose the Thickness editor button.

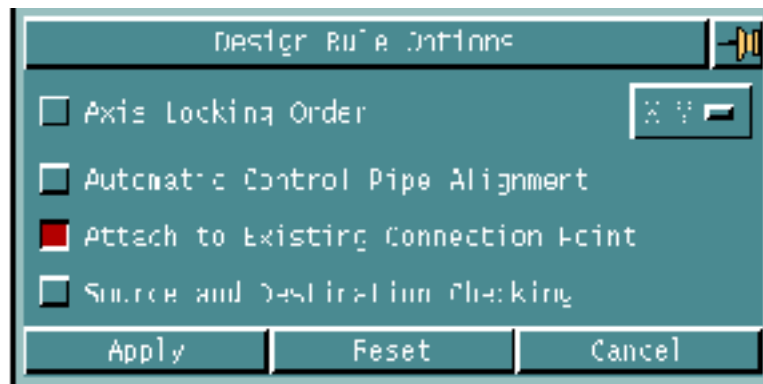
The Control Pipe Thickness run time list appears.



8. Choose a thickness and choose the Accept button.
9. On the Changing Control Pipe Parameters, choose the Material editor button.
The Control Pipe Material run time list appears.



10. Choose a material and choose the Accept button.
11. On the Schematic Control Pipe Segment Routing property sheet, choose the Design Rule Checking toggle and press the Options pushbutton.
The Design Rule Options menu appears.



12. Choose the Axis Locking Order toggle and then the Options pushbutton.

The Axis Locking Order option list appears.



13. On the Control Pipe Parameters menu, choose the Accept button.
14. On the Schematic Control Pipe Segment Routing property sheet, choose the Apply button.

Routing a Passageway Without Control Pipes



Use this menu option to route a passageway without control pipes.

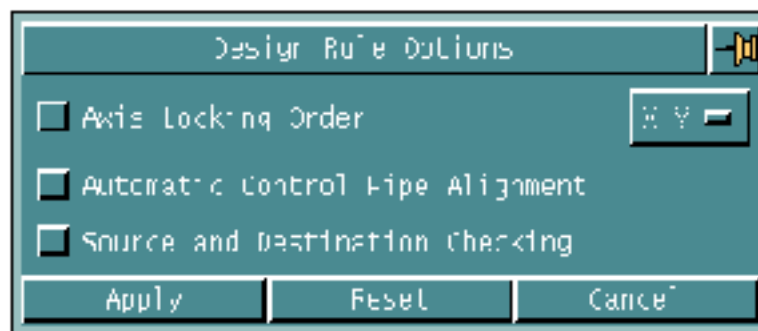
1. Choose the Route Passageway Without a Control Pipe option.

The Schematic Passageway Routing property sheet appears.



2. On the Schematic Passageway Routing property sheet, choose the Design Rule Checking toggle.

The Design Rule Options menu appears.



3. Choose the Axis Locking Order toggle.

The Axis Locking Order option list appears.



4. On the Control Pipe Parameters menu, choose the Accept button.
5. On the Schematic Passageway Routing property sheet, choose the Apply button.

Clearing Control Pipe Marking



Use this menu option to directly clear the passageway markings created while routing or reporting the control pipes.

1. Choose the Clear Highlighting option.

The highlighting is removed from all highlighted entities.

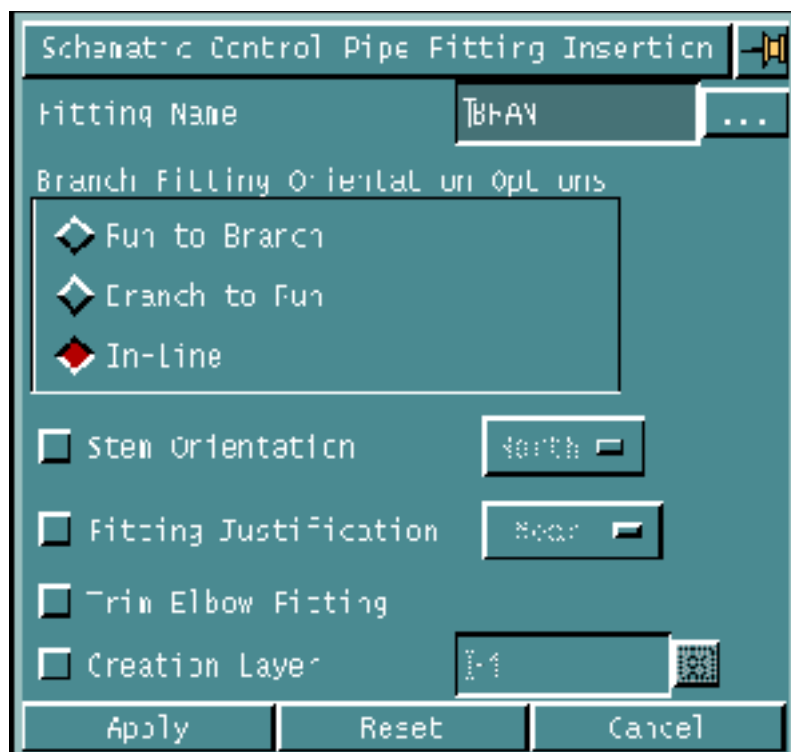
Inserting Control Pipe Fittings



Use this menu option to insert control pipe fittings in existing control pipes.

1. Choose the Insert Control Pipe Fitting option.

The Schematic Control Pipe Fitting Insertion property sheet appears.



2. Choose the Fitting Name editor button.

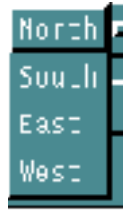
The Control Pipe Fittings run-time list appears.

Please note: The fittings are listed from the stock number file, specified by the Stock Number File field in Control Pipe Parameters Selection property sheet.



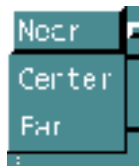
3. Choose the Stem Orientation toggle and the Option list button.

The Stem Orientation option list appears.



4. Choose the Fitting Justification toggle and the Option list button.

The Fitting Justification option list appears.



5. On the Schematic Control Pipe Fitting Insertion property sheet, choose the Apply button to insert the fitting.

Please note: The following options are not available for selection, when you select the Run To Branch or Branch To Run toggles.

- Stem Orientation
- Fitting Justification
- Rotation Angle
- Trim Elbow Fitting

Inserting an Identical Control Pipe Fitting



Use this menu option to directly insert a control pipe fitting identical to an existing control pipe fitting.

1. Choose the Insert Identical Control Pipe Fitting option.

The systems prompts you to select an existing control pipe fitting.

A new control pipe fitting with parameters the same as those of the selected control pipe fitting is inserted at the selected location.

Displaying Control Pipes



This menu option invokes the property sheet where you change the control pipe display mode.

1. Choose the Change Control Pipe Display Mode option.

The Displaying Control Pipes property sheet appears.

Display Control Pipes

Passageway Selection Method

- ☒ Select Graphically
- ☐ Specify Label - ☐ All Passageways in Active Part

Control Pipe Display Mode

- ☒ Multi-line
 - ☐ Space between Control pipes - ☐ Font Name
- ☐ Fill
 - ☐ Justification - ☐ Passageway Reduction - ☐ Width
- ☐ Single line

Apply Reset Cancel

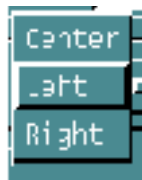
2. Select Specify Label toggle and press the editor button.

The Passageway Labels run-time list appears.



3. Select the Fill toggle and then select the Justification toggle.
4. Choose the Option list button.

The Fill Justification option list appears.



5. Choose the Apply button.

Changing Control Pipe Display Mode Back to Single Line (Direct Action)



Use this menu option to directly change the display mode of the selected control pipe passageways back to a single nodal line representation from either multiple line or fill display mode.

1. Choose the Change Control Pipe Display Mode direct action option.

The system prompts you to select the control pipe.

2. Select the desired control pipe.

The display mode of the selected control pipe changes back to a single nodal line representation.

Deleting Control Pipe Passageways

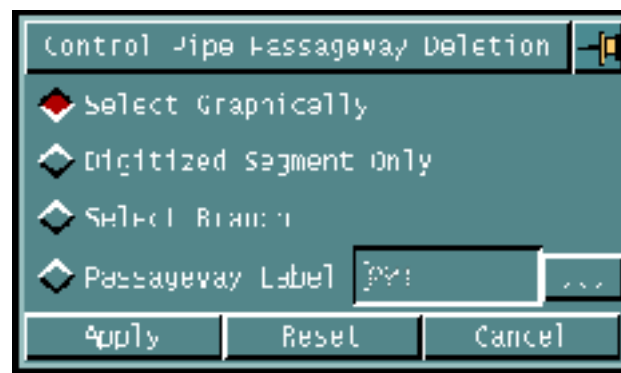


Use this menu option to delete selected control pipe passageways with options

You can delete an entire control pipe passageway or branches of a control pipe passageway or individual segments of a control pipe passageway. The passageway can be identified by either specifying the passageway label or by digitizing.

1. Choose the Delete Control Pipe Passageway option.

The Control Pipe Passageway Deletion property sheet appears.



2. Choose the Select Graphically toggle to digitize the passageways to be deleted.
3. Choose the Digitized Segment Only toggle to delete the digitized passageway segment and roll back all of the control pipes routed through this segment, from their destinations upto their end points. If the source of any control pipe label is the same as the segment end points, then the control pipe label will be deleted.
4. Choose the Select Branch toggle to delete only the digitized branch passageway and all the control pipes associated with the selected branch.
5. Choose the Passageway Label toggle and enter the label in the fill-in field to delete the specified passageway or press the editor button.

The Passageway Labels run-time list appears.



Please note: The Digitized Segment Only, Select Branch, and Passageway Label toggles are mutually exclusive.

6. Choose the passageway label from the list.
7. Choose the Accept button.
8. Choose the Apply button to delete the selected passageway.

Deleting a Schematic Control Pipe Passageway (Direct Action)



Use this menu option to directly delete a selected control pipe passageway.

1. Choose the Delete a Passageway option.

The system prompts you to select the passageway.

2. Select the passageways to be deleted on the drawing.

The selected passageways are deleted as well as all the control pipes running in those passageways.

Deleting Selected Control Pipe Fittings (Direct Action)



Use this menu option to directly delete a selected control pipe fitting.

1. Choose the Delete a Control Pipe Fitting option.
2. Select the fitting to be deleted on the drawing.

The selected fitting is deleted.

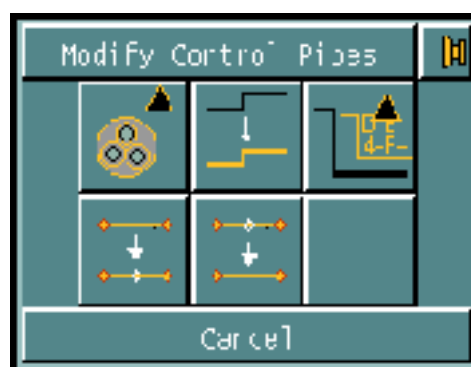
Modifying Control Pipes



Use this menu option to modify control pipe parameters, change passageway labels and layers, or delete a set of control pipes along a control pipe passageway.

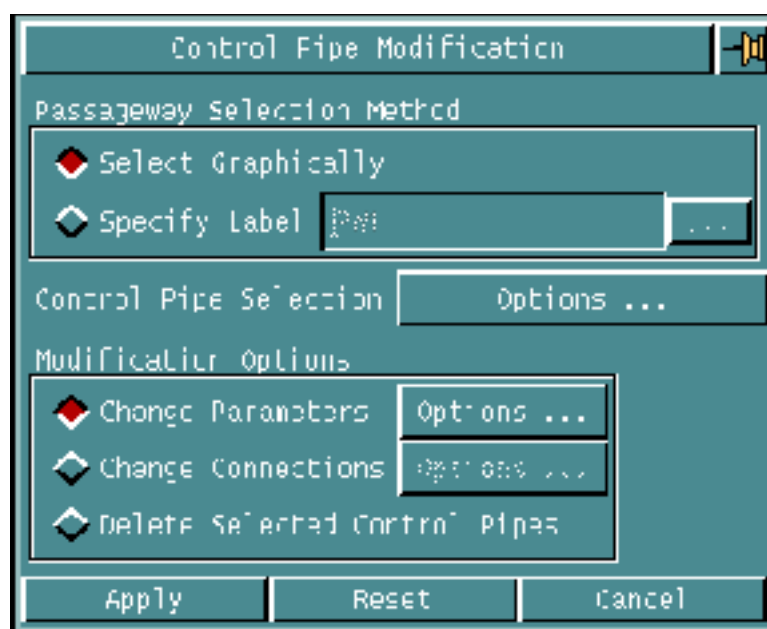
1. Choose the Modify Control Pipe option.

The Modify Control Pipes command palette appears.



2. Choose the Modify Control Pipes option to modify various control pipe parameters.

The Control Pipe Modification property sheet appears.

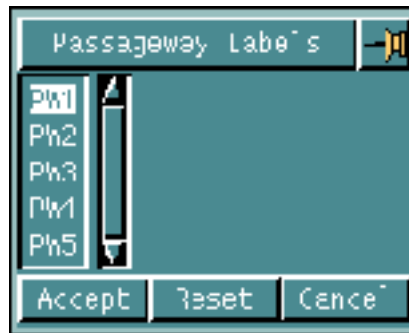


Passageway Selection Method

You can select a passageway either by digitizing or by specifying the passageway label.

1. On the Control Pipe Modification property sheet, choose Specify Label toggle and press the editor button.

The Passageway Labels run time list appears.



Control Pipe Selection Method

Since control pipes are not visible entities in a model, you select them by selecting a passageway or by specifying various control pipe parameters.

1. On the Control Pipe Modification property sheet, choose the Control Pipe Selection toggle and the Options pushbutton.
2. To choose a passageway by specifying a passageway label, choose the Specify Label toggle and enter the label name.

The Control Pipe Selection Parameters menu appears.

3. To choose a passageway graphically, choose the Select Graphically toggle.

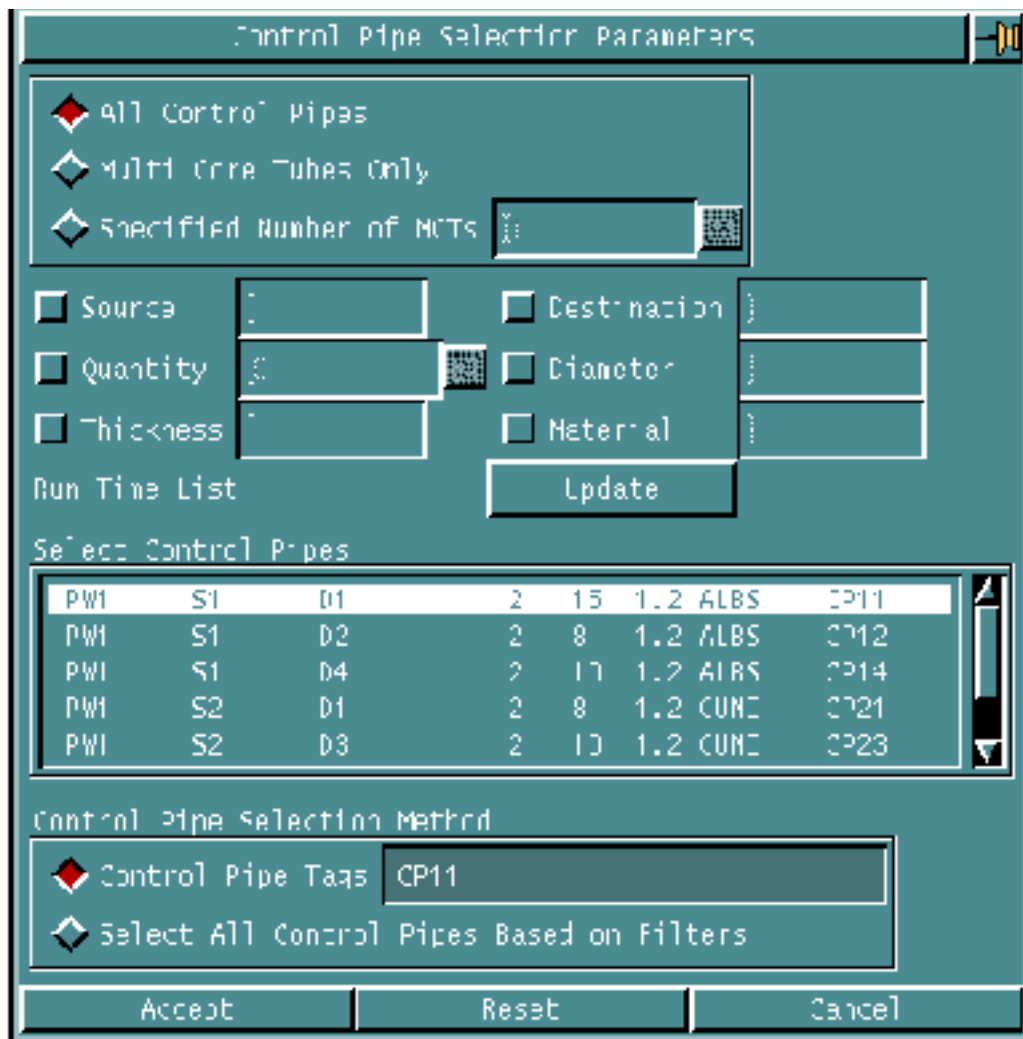
The following prompt appears.

Digitize Passageway: Model entity d1

4. Digitized the passageway.

Please note: All control pipes from the passageway are listed in the Select Control Pipes scroll list on menu.

The Control Pipe Selection Parameters menu appears.



The dialog box is titled "Control Pipe Selection Parameters". It contains several sections:

- Selection Method:** Three radio buttons are present: "All Control Pipes" (selected), "Multi Control Pipes Only", and "Specified Number of MCTs".
- Filters:** A group of checkboxes for "Source", "Quantity", and "Thickness", each followed by a text input field. To the right, there are checkboxes for "Destination", "Diameter", and "Material", each followed by a list box.
- Buttons:** "Run Time List" and "Update" buttons are located below the filter checkboxes.
- Select Control Pipes:** A scrollable list box containing a table of pipe data.
- Control Pipe Selection Method:** Two radio buttons: "Control Pipe Tags" (selected) and "Select All Control Pipes Based on Filters". The "Control Pipe Tags" option has a text input field containing "CP11".
- Footer:** "Accept", "Reset", and "Cancel" buttons.

PWI	S1	D1	2	15	1.2	ALBS	CP11
PWI	S1	D2	2	8	1.2	ALBS	CP12
PWI	S1	D4	2	17	1.2	ALBS	CP14
PWI	S2	D1	2	8	1.2	CUMI	CP21
PWI	S2	D3	2	13	1.2	CUMI	CP23

- Choose the required control pipes by scrolling through the Select Control Pipes scroll list.

The selected control pipes tag appears in Control Pipe Tags fill-in field.

- Choose the Specified Number of MCTs toggle to filter the control pipe description labels listed under the Select Control Pipes scroll list.
- Choose the Source toggle and enter a source name.
- Choose the Quantity toggle and enter a quantity.
- Choose the Thickness editor button.

The Control Pipe Thickness run time list appears.



10. On the Control Pipe Selection Parameters property sheet, choose a thickness and choose the Accept button.
11. Choose the Destination toggle and enter a destination name.
12. On the Control Pipe Selection Parameters property sheet, choose the Diameter editor button.

The Control Pipe Diameter run time list appears.



13. Choose a diameter and choose the Accept button.
14. On the Control Pipe Selection Parameters property sheet, choose the Material editor button.

The Control Pipe Material run time list appears.

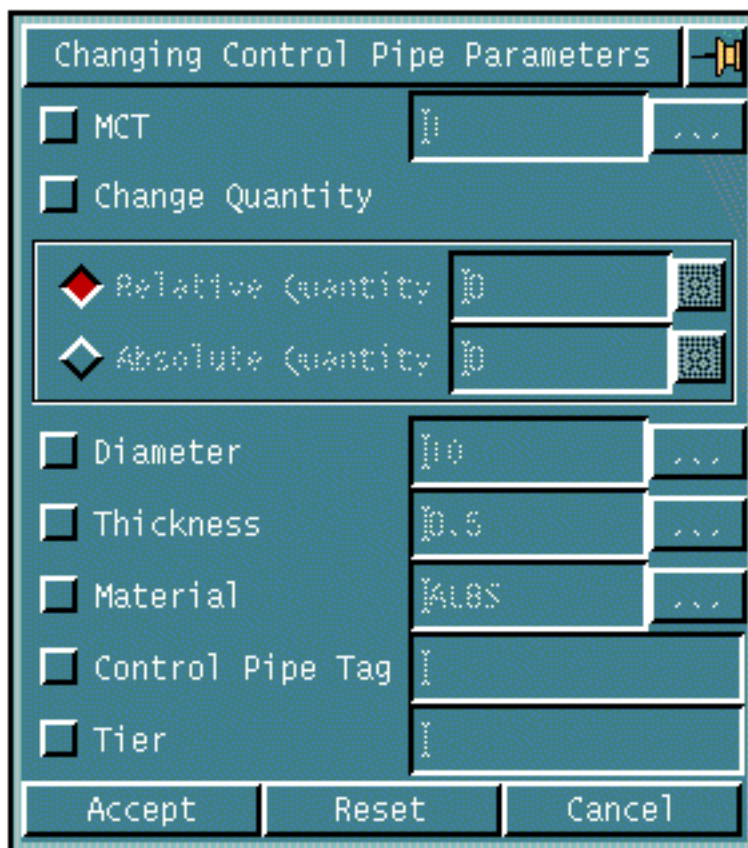


15. Choose a material and choose the Accept button.

16. To choose control pipes based on the filtering parameters, choose the Select All Control Pipes Based On Filters toggle.

Please note: Choosing in the manner saves you from having to select control pipes one by one from a long list.

17. To change the control pipe parameters, select the Change Parameters toggle from the Control Pipe Modification menu and press the Options pushbutton.
The Changing Control Pipe Parameters property sheet appears.



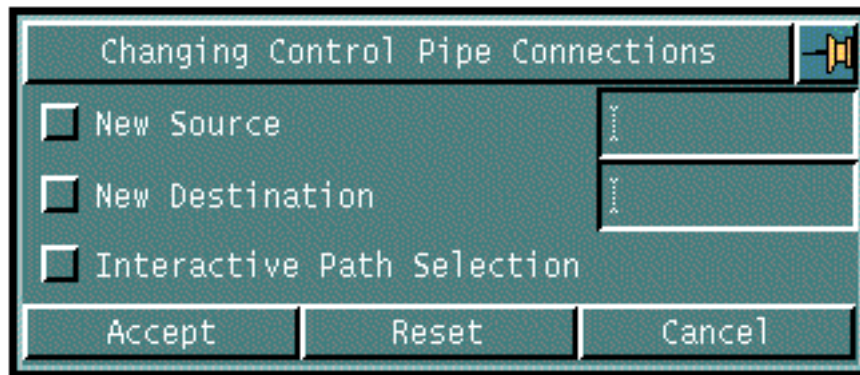
The image shows a dialog box titled "Changing Control Pipe Parameters". It contains several options and input fields:

- ☐ MCT: Input field contains "I".
- ☐ Change Quantity
- ☒ Relative Quantity: Input field contains "10".
- ☐ Absolute Quantity: Input field contains "10".
- ☐ Diameter: Input field contains "10".
- ☐ Thickness: Input field contains "10.5".
- ☐ Material: Input field contains "AL8S".
- ☐ Control Pipe Tag: Input field contains "I".
- ☐ Tier: Input field contains "I".

At the bottom are three buttons: "Accept", "Reset", and "Cancel".

18. Choose the Change Connections toggle and the Options pushbutton.

The Changing Control Pipe Connections property sheet appears.



19. To change the source, choose the New Source toggle and enter a source name.
20. To change the destination, choose the New Destination toggle and enter a source name.
21. To select new connections by digitizing, choose the Interactive Path Selection toggle and digitize the source and destination when prompted.
22. Choose the Accept button.

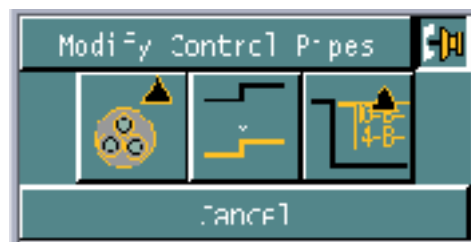
Example 1

This example selects a set of control pipes identified by the tag name CP1 in the selected passageway and modifies the diameter, material, and thickness according to the specified values.

Perform the following steps:

1. Choose the Control Pipe option on the Environment Access menu.
2. Choose the Schematic option on the Task Set Access menu.
3. Choose the Modify Control Pipe option from the Schematic Task Set.

The Control Pipe Modification command palette appears



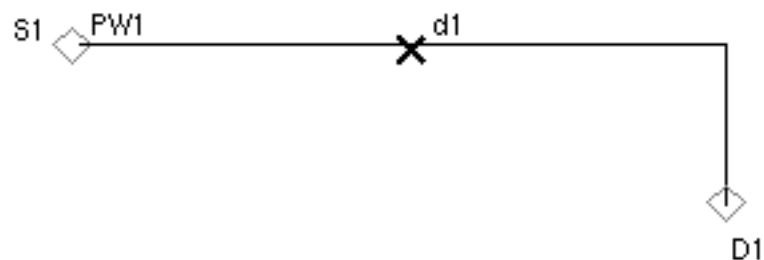
4. In the Modify Control Pipe property sheet, Choose the Control pipe Selection push button to bring up the sub menu.

Digitize Passageway : Model ent d1

Digitize the passageway as shown in the figure in the following page.

- a. Select the control pipe CP1 from scroll list, or enter CP1 in Control Pipe Tags fill-in field.
 - b. Click Accept button.
5. Choose Change Parameters toggle and press the push button to bring up the sub menu.
 - a. Enter 6 as the diameter in the Diameter field.
 - b. Enter CUT as the material in the Material field.
 - c. Enter 1.4 as the thickness in the Thickness field.
 - d. Click the Accept button.
 6. Click the Apply button to carry out the modification.
 7. In response to the following prompt on the screen,

MODIFY CPIPE PWLABEL PW1 SELECT TAG CP1 CHANGE
DIAMETER 6 MATERIAL CUT THICKNESS 1.4 <CR>



All the control pipes identified by the tag name CP1 in the selected passageway are selected and the diameter, material, and thickness are modified, as shown in Table AFTER.

Table 2-1 BEFORE

LABEL	FROM	TO	MCT	QTY	DIA	THK	MATL	TAG
PW1	S1	D1		6	10	1.2	SS316	CP1
PW1	S1	D1		6	16	1.2	SS316	CP2

Table 2-2 AFTER

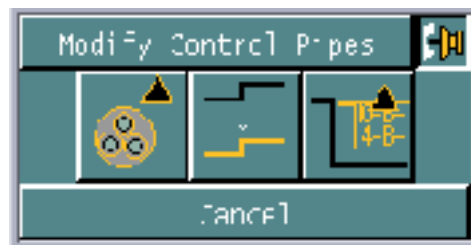
LABEL	FROM	TO	MCT	QTY	DIA	THK	MATL	TAG
PW1	S1	D1		6	6	1.4	CUT	CP1
PW1	S1	D1		6	16	1.2	SS316	CP2

Example 2

This example selects all the control pipes with diameter of 4 and material as CUT in the identified passageway PW1 and deletes them.

1. Choose Control Pipe on the Environment Access menu.
2. Choose Schematic on the Task Set Access menu.
3. Choose the Modify Control Pipe option from the Schematic Task Set.

The Modify Control Pipes window appears.



4. In the Modify Control Pipe property sheet, Choose the Control pipe Selection push button to bring up the sub menu.

Digitize Passageway : Model ent d1

Digitize the passageway as shown in the figure in the following page.

- Select the control pipe PW1 from scroll list, or enter PW1 in Control Pipe Tags fill-in field.
5. Choose Change, Diameter, and Material toggle and press the push button to bring up the sub menu.
 6. Enter 4 as the diameter in the Diameter field.
 7. Enter CUT as the material in the Material field.
- Choose Accept button.

8. Choose the Apply button to carry out the modification.
9. In response to the following prompt appears on the screen.

MODIFY CPIPE SELECT PWLABEL PW1 DIAMETER 4 MATERIAL CUT DELETE

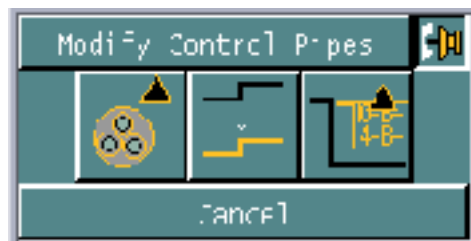
All the control pipes with diameter as 4 and material as CUT in the identified passageway PW1 are deleted.

Example 3

This example selects all the control pipes with CP2 as the tag name in the identified passageway and connects them to the source SRC1 in the passageway.

1. Choose the Control Pipe option on the Environment Access menu.
2. Choose the Schematic option on the Task Set Access menu.
3. Choose the Modify Control Pipe option from the Schematic Task Set.

The Modify Control Pipe command palette appears



4. In the Modify Control Pipe property sheet, Choose the Control pipe Selection push button to bring up the sub menu.

Digitize Passageway : Model ent d1

Digitize the passageway as shown in the figure in the following page.

- a. Select the control pipe CP2 from scroll list, or enter CP2 in Control Pipe Tags fill-in field.
- b. Click Accept button.
5. Choose Source toggle and press the push button to bring up the sub menu.
 - a. Enter SRC1 as the source in the Source field.
 - b. Choose the Accept button.
6. Choose the Apply button to carry out the modification.
7. In response to the following prompt on the screen,

MODIFY CPIPE SELECT TAG CP2 CONNECT SOURCE SRC1 : Select
Passageway MODEL ent

select the model location on the screen.

All the control pipes with CP2 as the tag name in the identified passageway are connected to the source SRC1 in the passageway.

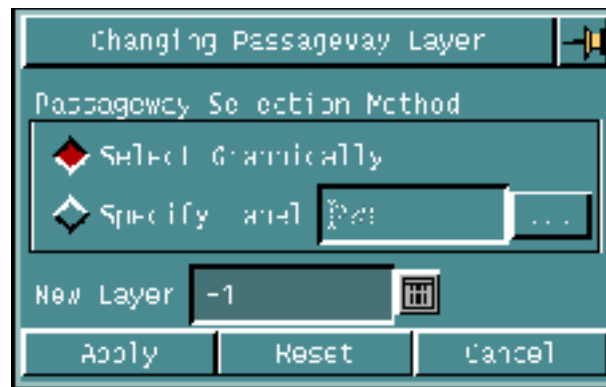
Changing Passageway Layer



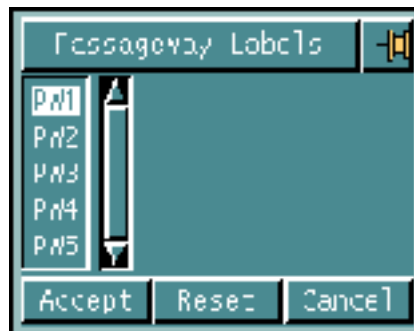
Use this menu option to change a passageway layer.

1. Choose the Change Passageway Layer option.

The Changing Passageway Layer property sheet appears.



The Passageway Labels run-time list appears.



2. Choose the passageway on which you want to change layers.
3. Choose the Apply button.

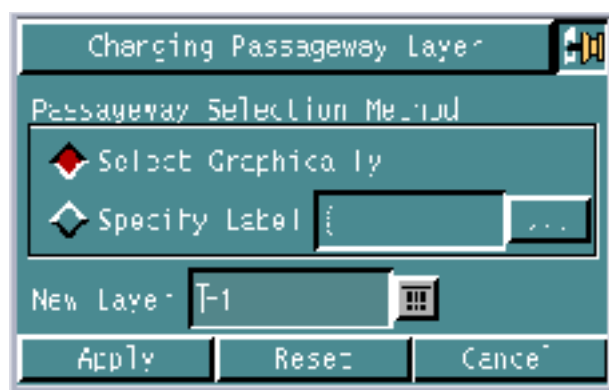
Changing Passageway Label



Use this menu option to change a passageway label.

1. Choose the Change Passageway Label option.

The Changing Passageway Label property sheet appears.



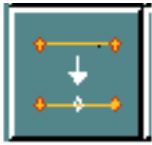
2. Choose the passageway graphically or by specifying the label to be modified.

The Passageway Labels run-time list appears.



3. Choose the label you want to modify.
4. Choose the Apply button.

Breaking Passageways



Use this menu option to split control pipes at specified locations.

1. Choose the Break Passageway option.
The following prompt appears.

Digitize Passageway: Model ent

The passageway splits where digitized.

Joining Passageways



Use this menu option to join selected passageways.

1. Choose the Join Passageway option.
The following prompt appears.

Digitize Passageway: Model ent d1 d2

The digitized passageways are joined and the connect node is deleted.

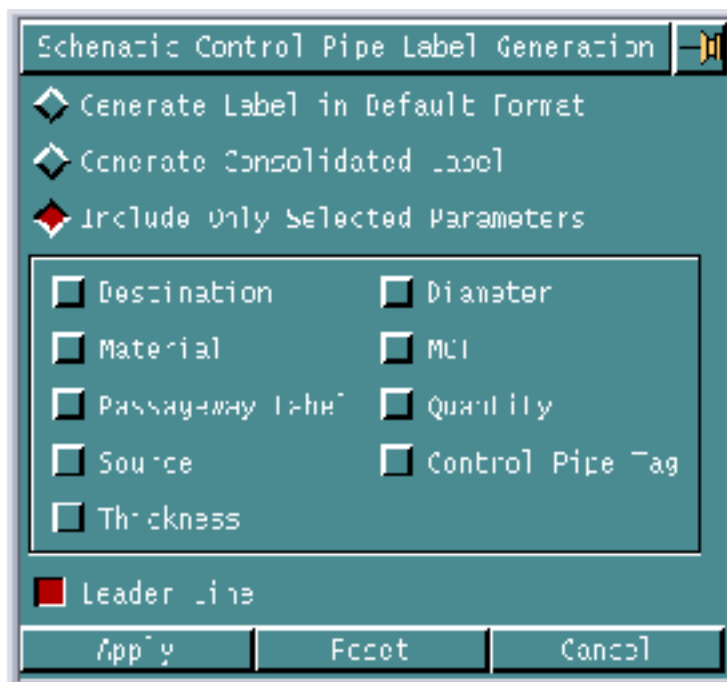
Generating Control Pipe Labels



Use this menu option to generate control pipe labels.

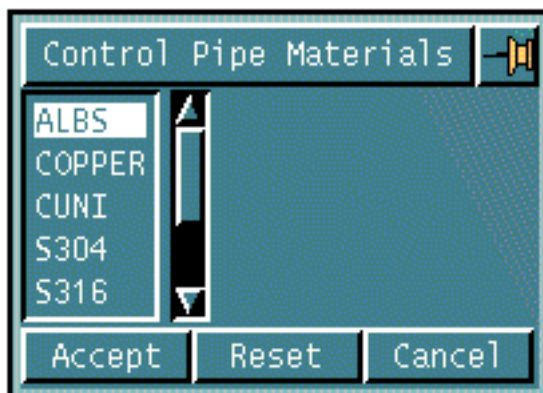
1. Choose the Generate Control Pipe Text Labels option.

The Schematic Control Pipe Label Generation property sheet appears.



2. Choose the Include only selected Parameters toggle.
3. Choose the Material editor button.

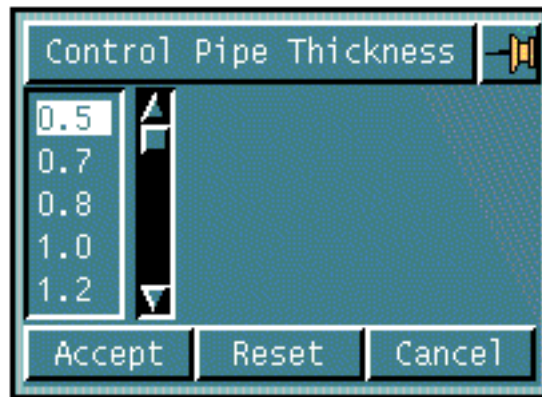
The Control Pipe Material run time list appears.



4. Choose a material and choose the Accept button.

5. Choose the Thickness editor button.

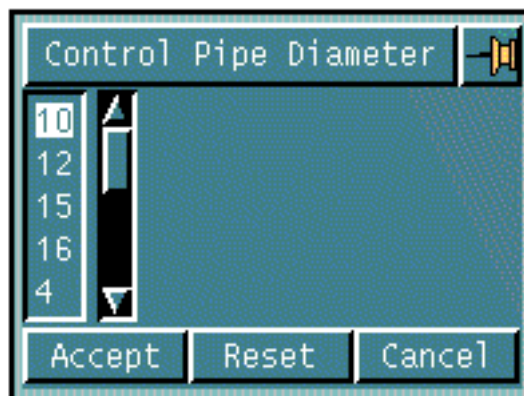
The Control Pipe Thickness run time list appears.



6. Choose a thickness and choose the Accept button.

7. Choose the Diameter editor button.

The Control Pipe Diameter run time list appears.



8. Choose a diameter and choose the Accept button.

9. Choose the Apply button.

Writing Control Pipe Attributes to an External Database



Use this menu option to extract various control pipe attributes from the CADDSS graphical database to an external database.

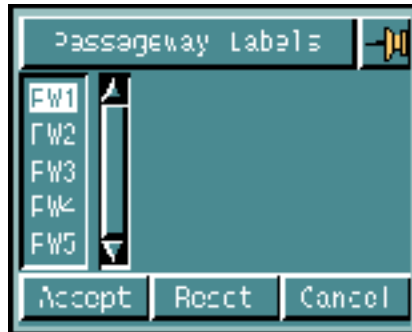
1. Choose the Generate Control Pipe External Database option.
The Control Pipe External Database Generation property sheet appears.

A screenshot of a software dialog box titled "Control Pipe External Database Generation". The dialog has a teal header bar with a small icon on the right. Below the header, there's a section labeled "External Database Login" containing two red input fields for "User Name" and "Password". Below these is a red input field for "Project Name". The next section is "Select Control Pipes From", which contains three radio button options: "Digitized Passageways" (selected), "All Passageways in Active Part", and "Passageway With Label" (which has a text input field next to it). At the bottom, there is an unchecked checkbox labeled "Overwrite Control Pipe External Database". The dialog concludes with three buttons: "Apply", "Reset", and "Cancel".

2. Enter your username and password.
3. Enter the project name.

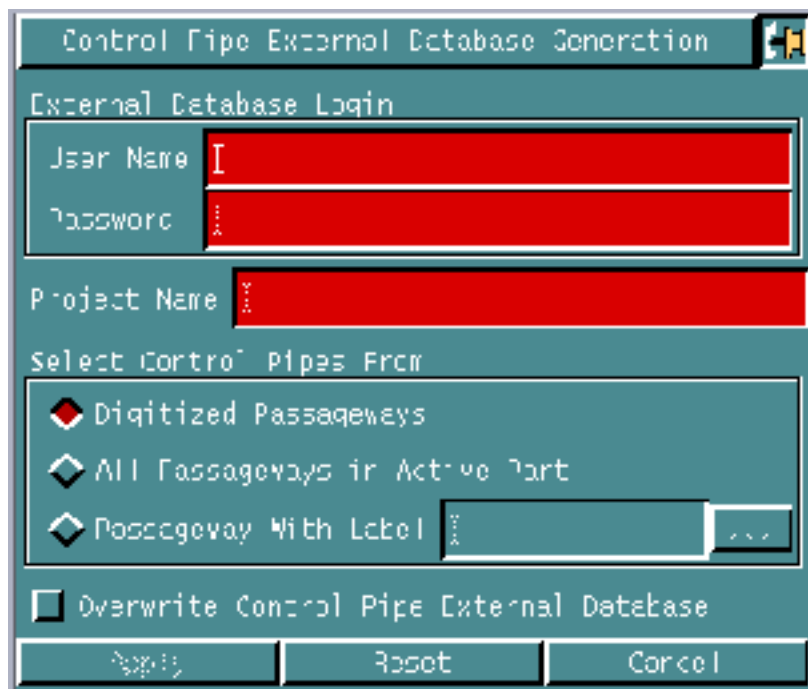
4. Choose a method for identifying the control pipe passageway.

If you chose specifying the passageway label as the selection method, the Passageway Labels run-time list appears.



5. Choose the appropriate label.

The Control Pipe External Database Generation property sheet reappears.



6. Choose the Overwrite Control Pipe External Database toggle.

This option overwrites an existing external database with the current information.

7. Choose the Apply button.

Generating Control Pipe Reports

Use this menu option to generate control pipe reports

1. Choose the Generate Control Pipe Reports option. (See “Accessing Control Pipe Report Options” on page 1-17.)

The Control Pipe Reports command palette appears as shown below.



Generating Control Pipe Reports



Use this menu option to report on control pipes and control pipe fittings.

1. Choose the Generate Control Pipe Reports option.

The Control Pipe Report property sheet appears.

Control Pipe Report

Passageway Selection Method

- ☒ Select Graphically
- ☐ Digitized Segment Only
- ☐ Specify Label ...
- ☐ All Passageways in Active Part

☐ Control Pipe Selection Criteria

☐ Highlight Reported Control Pipes

☐ Highlight Connected Control Pipe Series

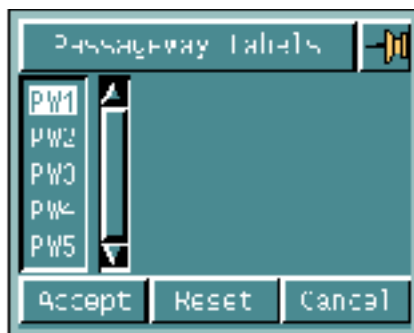
Report Output

- ☐ Specify Format
- ☐ Output to File
- ☒ Create New File
- ☐ Append Existing File
- ☐ Overwrite Existing File
- ☐ Output to Screen

☐ Warn Before Clearing Branch Numbers

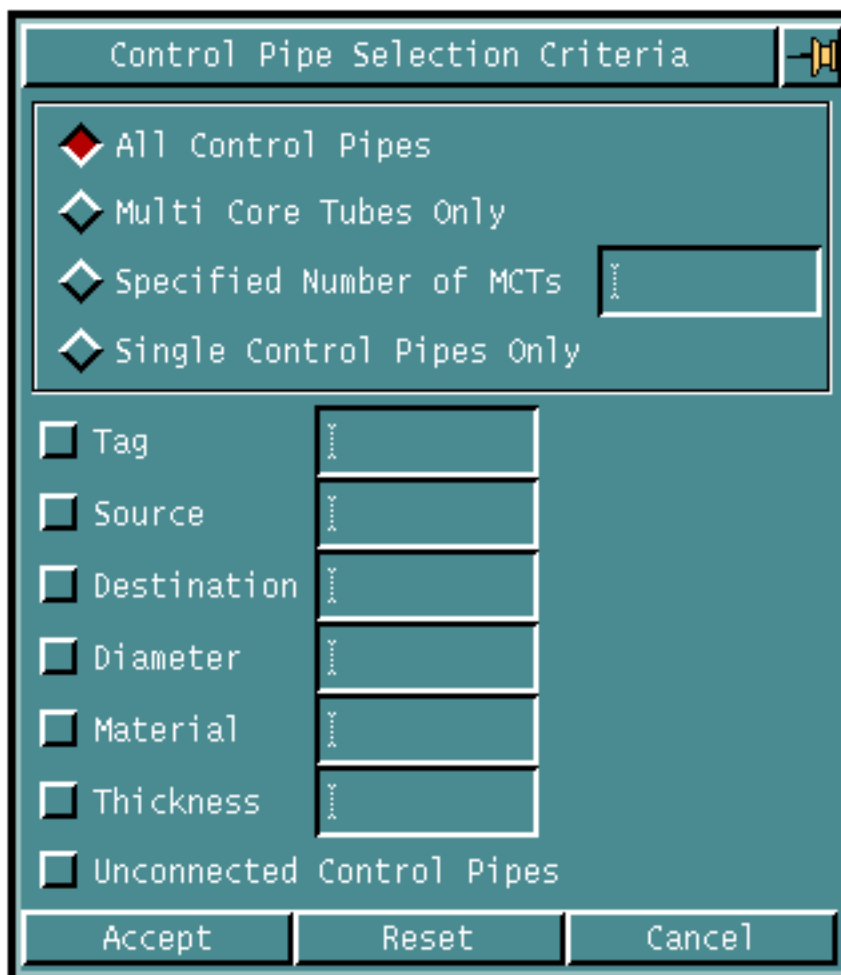
2. Select Specify Label toggle and press the editor button.

The Passageway Labels run-time list appears.



3. Choose the Control Pipe Selection Criteria toggle and press the Option pushbutton.

The Control Pipe Selection Criteria menu appears.



4. Choose the Specify Format toggle and press the Option pushbutton.

The Control Pipe Reporting Format menu appears.



5. Choose the Include only selected Parameters toggle.
6. Choose the Diameter editor button.

The Control Pipe Diameter run time list appears.



7. Choose a diameter and choose the Accept button.

8. Choose the Thickness editor button.

The Control Pipe Thickness run time list appears.



9. Choose a thickness and choose the Accept button.
10. Choose the Material editor button.

The Control Pipe Material run time list appears.



11. Choose a material and choose the Accept button.
12. Choose the Accept button.
13. On the Control Pipe Report property sheet, choose the Apply button.

Generating Control Pipe Segment Reports



Use this menu option to directly create reports on control pipes routed in the digitized passage way segment only.

1. Choose the Generate Control Pipe Segment Reports direct action option.
The system asks you to select a segment.
2. Select the desired segment.

A report of all the control pipes in the selected passageway segments is displayed.

Generating Control Pipe Reports



Use this menu option to directly generate reports on all control pipes in the selected passageways.

1. Choose the Generate Control Pipe Reports direct action option.
The system asks you to select a passageway.
2. Select the desired passageway.
A report of all the control pipes in the selected passageway is displayed.

Generating Control Pipe Default Parameter Listing



Use this menu option to list the currently selected default values of various control pipe parameters.

1. Choose the Generate Control Pipe Default Parameter Listing direct action option.
A listing of current values of all the control pipe parameters is displayed.

This chapter describes the aspects of control pipe modeling. The Modeling option on the Task Set Access menu displays the Modeling Task Set.

- Modeling Task Set Options
- Inserting Nfigures
- Changing Nfigure Relationships
- Routing Control Pipes in Modeling Mode
- Routing a Branch Control Pipe
- Routing Control Pipe Segments
- Routing a Passageway Without Control Pipes
- Clearing Control Pipe Marking
- Inserting Control Pipe and Passageway Fittings
- Inserting Control Pipe Supports
- Inserting an Identical Control Pipe Support
- Deleting Control Pipe Passageways
- Deleting Control Pipe Passageways (Direct Action)
- Deleting Control Pipe Passageway Fittings
- Deleting Control Pipes and Passageway Fittings (Direct Action)
- Deleting Control Pipe Supports
- Deleting Control Pipe Supports (Direct Action)
- Modifying Control Pipes
- Generating Control Pipe Labels
- Generating Cross-section Detail of Control Pipe Arrangement
- Writing Control Pipe Attributes to an External Database

- Generating Drawings of Control Pipe Passageway Fittings
- Generating Control Pipe Reports

Modeling Task Set Options

The 21 icons on the Modeling Task Set display the property sheets you use in control pipe modeling. For details on accessing the options on the Modeling task set menu refer to “Accessing the Modeling Task Set Options” on page 1-15.



Insert Nfigures: Inserts nfigs, sfigs, and pfigs. This icon displays the Insert Figure command palette, which allows you to insert, construct, and create figures.



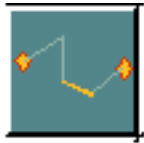
Change Nfigure Relationships: Makes or breaks relationships between two nfigs, or between an nfig and a tnode. This icon displays the Change Figure Relationships command palette.



Route Control Pipes: Routes control pipes. This icon displays the Control Pipe Routing property sheet, where you can indicate control pipe specifications and details.



Route Control Pipe Branching: Inserts a control pipe branching. This icon displays the Branch Control Pipe Routing property sheet



Route Control Pipe Segments: Routes control pipes. This icon displays the Control Pipe Segment Routing property sheet.



Route Passageway without Control Pipes: Routes a passageway without control pipes. This icon displays Passageway Routing property sheet



Clear Control Pipe Marking (direct action): Clears marking of a recently routed control pipe.



Insert Control Pipe and Passageway Fittings: Inserts control pipe passageway general fittings in existing control pipes or passageways. This icon displays the Control Pipe Fitting Insertion property sheet.



Insert Control Pipe Supports: Inserts a control pipe support.



Insert Identical Control Pipe Support (direct action): Inserts a control pipe support identical to an existing control pipe support. The system prompts you to select an existing control pipe support.



Delete Control Pipe Passageways: Deletes selected control pipe passageways. This icon displays the Control Pipe Passageway Deletion property sheet.



Delete Control Pipe Passageways (direct action): Deletes selected control pipe passageway.



Delete Control Pipe And Passageway Fittings (with options): Deletes selected control pipe passageway fitting or control pipe fitting. This icon displays the Control Pipe Fitting Deletion property sheet.



Delete Control Pipe And Passageways Fittings (direct action): Deletes a selected control pipe passageway fitting or control pipe fitting. The system prompts you to select the passageway fitting or control pipe fitting.



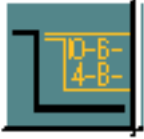
Delete Control Pipe Supports: Deletes a selected control pipe support. The system prompts you to select the support.



Delete Control Pipe Supports (direct action): Deletes a selected control pipe support. The system prompts you to select the support.



Modify Control Pipes: Modifies the control pipe parameters and changes passageway labels and layers. You can use this option to balance a passageway by connecting control pipes to a selected source and/or destination. You can also select the passageway interactively. This icon displays the Modify Control Pipe command palette.



Generate Control Pipe Labels: Generates control pipe labels. This icon displays the Control Pipe Label Generation property sheet.



Generate Cross-section Detail Of Control Pipe Arrangement: Generates a cross-section detail representation of a control pipe arrangement.



Write Control Pipe Attributes To An External Database: Extracts various control pipe attributes from the CADDs graphical database and writes them to an external database. This icon displays the Control Pipe External Database Generation property sheet.



Generate Drawings Of Control Pipe Passageway Fittings: Extracts various control pipe attributes from the CADDs graphical database and writes them to an external database. This icon displays the Control Pipe External Database Generation property sheet.

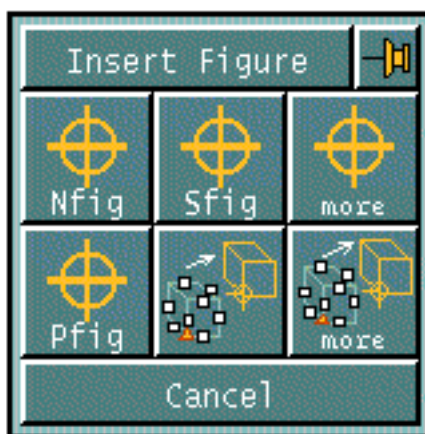
Inserting Nfigures



Use this menu option to display a command palette that enables the insertion of existing Nfigures (nodal figures), Sfigures (sub figures) and Pfigures (part figures) into an active part. A figure is a copy of an existing part that you can use to duplicate and standardize information in other parts. Please refer the Figures chapter in the *Nodal Construction User Guide and Menu Reference* for more information about this option.

1. Choose the Insert Figure option.

The Insert Figure command palette appears.



2. To insert or create a single figure, choose one of the direct action icons labeled in the above figure and enter the figure name.

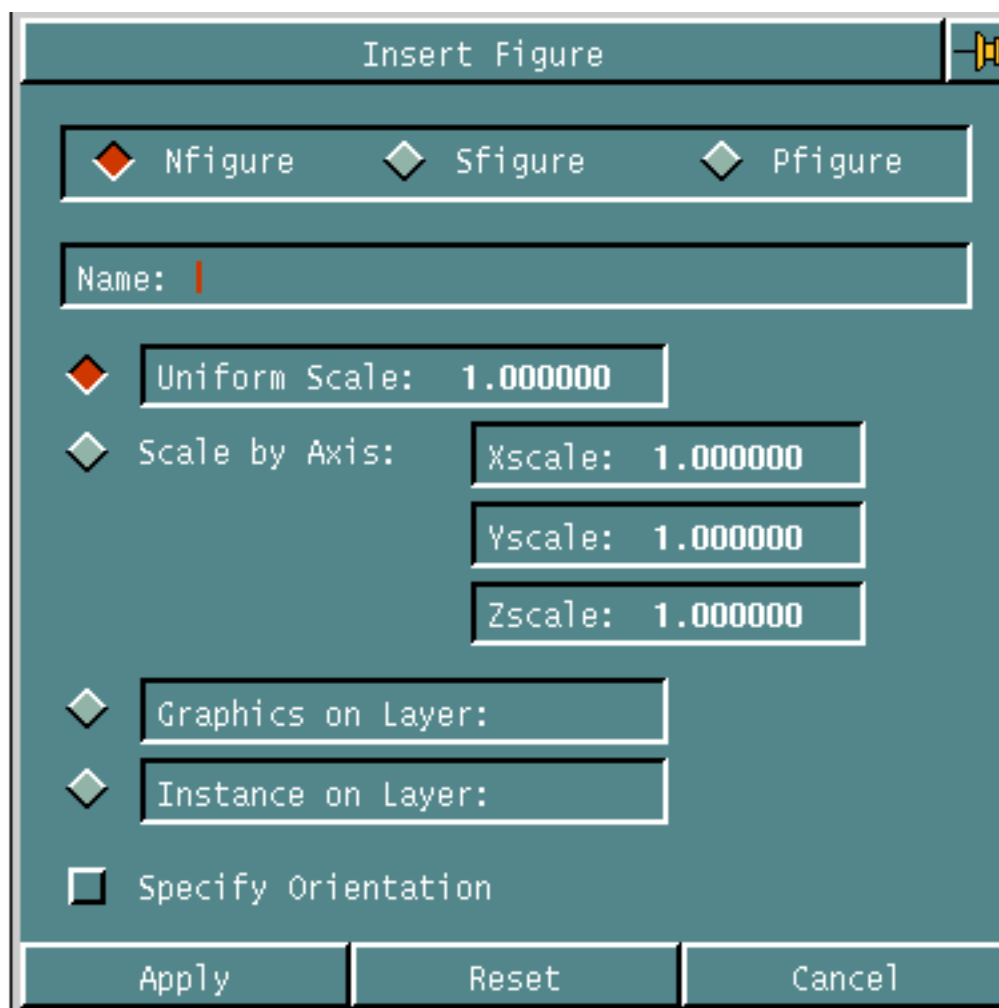


Choose this option to insert figures with options.



Choose this option to construct local Nfigures from selected entities..

The Insert Figure property sheet appears.

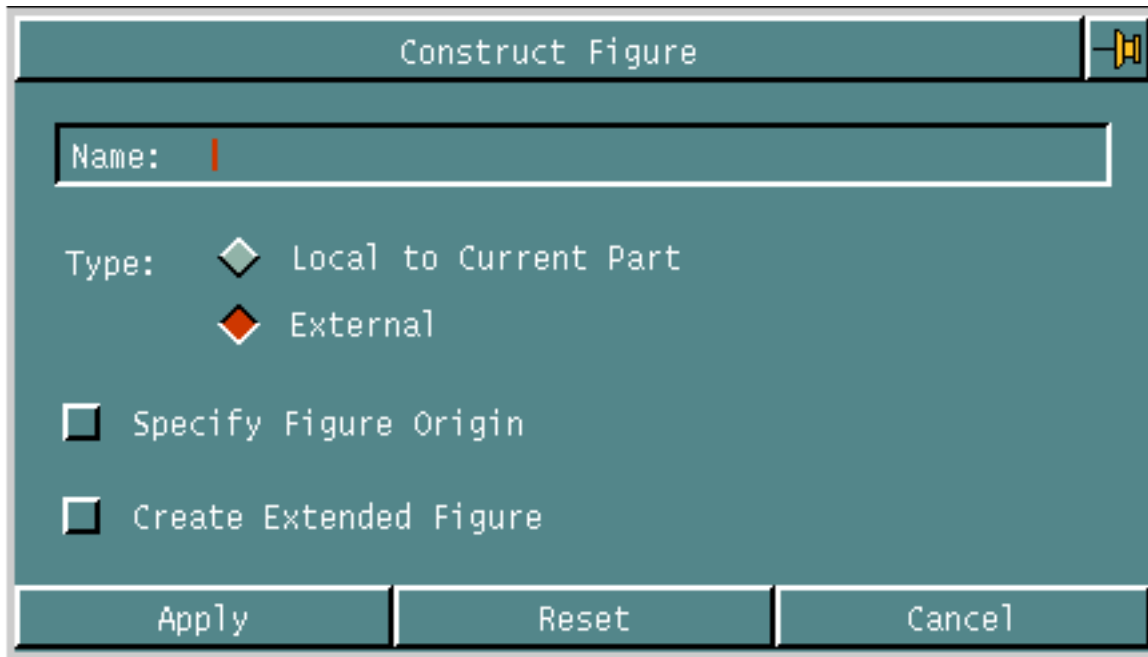


The image shows a software dialog box titled "Insert Figure". At the top, there are three radio buttons: "Nfigure" (selected), "Sfigure", and "Pfigure". Below these is a text field labeled "Name:" with a cursor. Underneath is a section for scaling, starting with a radio button for "Uniform Scale:" followed by a text field containing "1.000000". Below that is a radio button for "Scale by Axis:", followed by three stacked text fields for "Xscale: 1.000000", "Yscale: 1.000000", and "Zscale: 1.000000". Further down are two radio buttons, each followed by a text field: "Graphics on Layer:" and "Instance on Layer:". At the bottom of the main area is a checkbox labeled "Specify Orientation". The dialog has three buttons at the bottom: "Apply", "Reset", and "Cancel".

3. Choose a figure type.
4. Enter a figure name in the Name field.
5. Choose the desired remaining parameters.
6. Choose the Apply button.

7. To construct figures with options, choose the Construct Figure with Options icon.

The Construct Figure property sheet appears.



8. Choose a figure type.
9. Enter a figure name in the Name field.
10. Choose the desired remaining parameters.
11. Choose the Apply button.

Changing Nfigure Relationships



Use this menu option to make or break relationships between nfigs and nfigs and tnodes.

1. Choose the Change Nfigure Relationships option.

The Change Figure Relationships command palette appears.



Make a Relationship Between Nfigs



Use this menu option to make a relationship between two nfigs.

1. Choose the Make a Relationship Between Nfigs option.

The system prompts you to select the nfigs you want to relate.

2. Select the nfigs you want to relate.
3. The relationship between nfigs is established.

Break a Relationship Between Nfigs



Use this menu option to dissolve a relationship between two nfigs.

1. Choose the Dissolve a Relationship Between Nfigs option.

The system prompts you to select the nfigs you want to unrelate.

2. Select the nfigs you want to relate.
3. The relationship between nfigs is dissolved.

Make a Relationship Between an Nfig and a Tnode



Use this menu option to make a relationship between an nfig and a tnode.

1. Choose the Make a Relationship Between an Nfig and a Tnode option.
The system prompts you to select the nfig and tnode you want to relate.
2. Select the nfig and tnode you want to relate.
3. The relationship between the nfig and tnode is established.

Break a Relationship Between an Nfig and a Tnode



Use this menu option to dissolve a relationship between an nfig and a tnode.

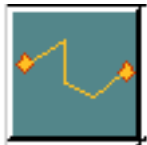
1. Choose the Dissolve a Relationship Between an Nfig and a Tnode option.
The system prompts you to select the nfig and tnode you want to unrelate.
2. Select the nfig and tnode you want to relate.
3. The relationship between the nfig and tnode is dissolved.

Routing Control Pipes in Modeling Mode

The Route Control Pipe option will allow you to route control pipes, automatically create passageways as required.

The quantity, diameter, thickness, material and general description of the control pipe to be routed can be specified through the various options available on the Control Pipe Routing property sheet. A scalar entity is created for each control pipe to store the data of that control pipe. This data will be available for performing functions such as design and verification, reporting, control pipe label generation, and drawing production etc. This scalar entity should have the STOCKNO property.

Please note: STOCKNO stores the stock number of this control pipe which is got from the field STK# of the control pipe auto-selection file.



Use this menu option to route control pipes in modeling model.

1. Choose the Route Control Pipe option.

The Control Pipe Routing property sheet appears.

Control Pipe Routing

Control Pipe Specification

Description List 1-4-1.0-ALBS ...

Specify Parameters Options ...

Control Pipe Details

Identification Tag

Source

Destination

Justification Center

Passageway Details

Passageway Label

Section Type

Tier Number

Justification Bottom

Design Rule Checking Options ...

Interactive Path Selection

Apply Reset Cancel

2. Choose the Description List toggle and the editor button.

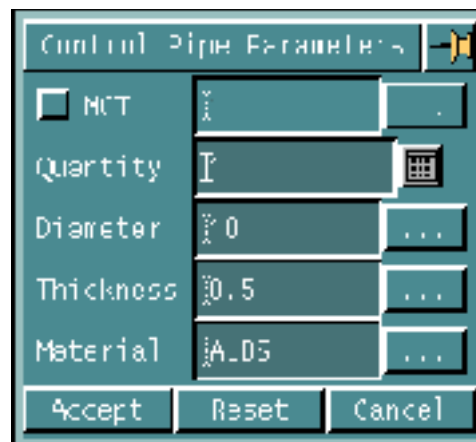
The Control Pipe Description run time list appears.



Please note: If you do not specify control pipe information in either of the Control Pipe Specification options, the passageway, with no information, is routed between the specified locations.

3. Choose the Specify Parameters toggle and the Options pushbutton.

The Control Pipe Parameters menu appears.



4. Choose the MCT toggle and the editor button.

The Control Pipe MCT run time list appears.



5. Choose the Diameter editor button .

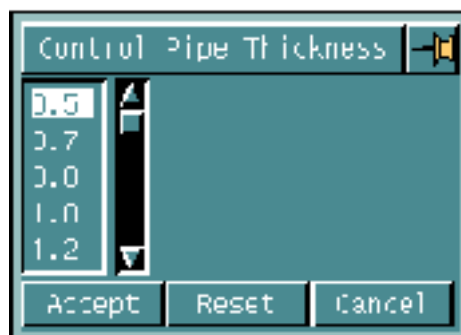
The Control Pipe Diameter run time list appears.



6. Choose a diameter and choose the Accept button.

7. On the Control Pipe Parameters, choose the Thickness editor button.

The Control Pipe Thickness run time list appears.



8. Choose a thickness and choose the Accept button.

9. On the Control Pipe Parameters, choose the Material editor button.

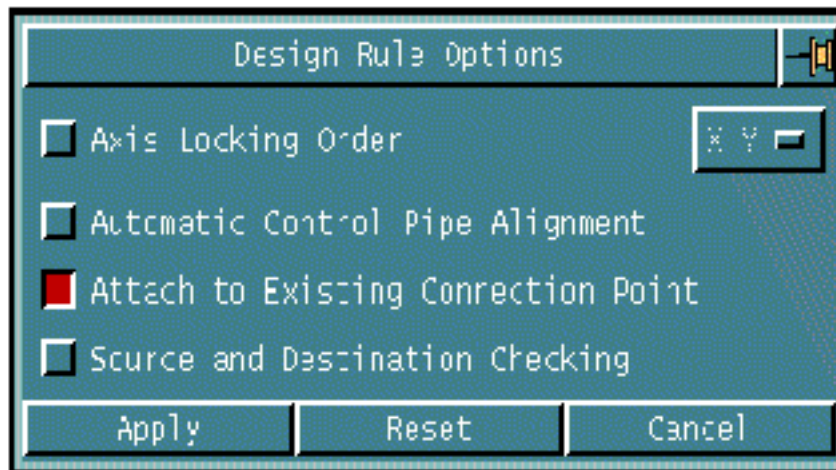
The Control Pipe Material run time list appears.



10. Choose a material and choose the Accept button.

11. On the Control Pipe Routing property sheet, choose the Design Rule Checking toggle and the Options pushbutton.

The Design Rule Options menu appears.



If you choose the Attach to existing Connection Point, and there is only one passageway at the selected cnode starting location, then the control pipes in the existing passageway will be extended to the new location.

Routing from sources and /or destinations which are in viewed parts, is not supported at this time.

12. Choose the Axis Locking Order toggle and then the Options pushbutton.

The Axis Locking Order option list appears.



13. On the Control Pipe Parameters menu, choose the Accept button.

14. On the Control Pipe Routing property sheet, choose the Apply button.

Example 1

This example routes a new control pipe passageway between a selected source and destination, and along a selected path. The passageway will have two control pipes with diameter of 12mm, a wall thickness of 1.2mm, material CUT, and tag CP1. The passageway label will be stored as nodal text attached to the passageway nline as PW1.

Perform the following steps:

1. Choose the Route Control Pipe option from the Modeling Task Set.
2. The Control Pipe Routing property sheet appears.

The screenshot shows the 'Control Pipe Routing' dialog box with the following sections and controls:

- Control Pipe Specification**
 - Description List:** A text field containing '1-4-1.0-ALBS' and a browse button (...).
 - Specify Parameters:** A button labeled 'Options ...'.
- Control Pipe Details**
 - Identification Tag:** A checkbox and an empty text field.
 - Source:** A checkbox and an empty text field.
 - Destination:** A checkbox and an empty text field.
 - Justification:** A checkbox and a dropdown menu currently set to 'Center'.
- Passageway Details**
 - Passageway Label:** A checkbox and an empty text field.
 - Section Type:** A checkbox and a text field containing '1' with a browse button (...).
 - Tier Number:** A checkbox and a text field containing '1' with a grid icon to its right.
 - Justification:** A checkbox and a dropdown menu currently set to 'Bottom'.
- Design Rule Checking:** A checkbox and a button labeled 'Options ...'.
- Interactive Path Selection:** A checkbox.
- Buttons:** 'Apply', 'Reset', and 'Cancel' at the bottom.

3. Enter Pw1 in the Pwlabel field.
4. Enter 2 in the Quantity field.
5. Enter 12 in the Diameter field.

6. Enter 1.2 in the Thickness field.
7. Enter CUT in the Material field.
8. Enter CP1 in the Tag field.
9. Choose the Apply button.
10. In response to the following prompt on the screen,
ROUTE CPIPE PWLABEL PW1 QUANTITY 2 DIAMETER 12 THICKNESS 1.2
MATERIAL CUT TAG CP1 : Select Source MODEL ent
select location d1, as shown in the figure below.
11. In response to the following prompt on the screen,
ROUTE CPIPE PWLABEL PW1 QUANTITY 2 DIAMETER 12 THICKNESS 1.2
MATERIAL CUT TAG CP1 : Select Source MODEL ent D1 ; Select
Path MODEL loc
select location d2, as shown in the figure below.
12. In response to the following prompt on the screen,
ROUTE CPIPE PWLABEL PW1 QUANTITY 2 DIAMETER 12 THICKNESS 1.2
MATERIAL CUT TAG CP1 : Select Source MODEL ent D1 ; Select
Path MODEL loc D2 ; Select Destination MODEL ent
select location d3, as shown in the following figure.

BEFORE



A new control pipe passageway is created between the selected source (d1) and destination (d3), along the selected path (d2).



Example 2

This example routes a new control pipe passageway between selected points d1 and d2, d3 and d4. Since a passageway between d2 and d3 already exists, no new passageway is created between these two locations. The passageway between S2 and D2 will have two control pipes with diameter of 12mm, wall thickness of 1.2mm, material CUT and tag CP2.

Perform the following steps:

1. Choose the Route Control Pipe option from the Modeling Task Set.
The Control Pipe Routing property sheet appears.
2. In the Route Control Pipe property sheet, enter 2 as the quantity in the Quantity field.
3. Enter 12 as the diameter in the Diameter field.
4. Enter 1.2 as the wall thickness in the Thickness field.
5. Enter CUT as the material in the Material field.
6. Enter CP2 as the tag name in the Tag field.
7. Choose the Apply button.
8. In response to the following prompt on the screen,

```
ROUTE CPIPE QUANTITY 2 DIAMETER 12 THICKNESS 1.2 MATERIAL CUT TAG
CP2 : Select Source MODEL ent
```

select location d1 as shown in the following figure.

9. In response to the following prompt on the screen,

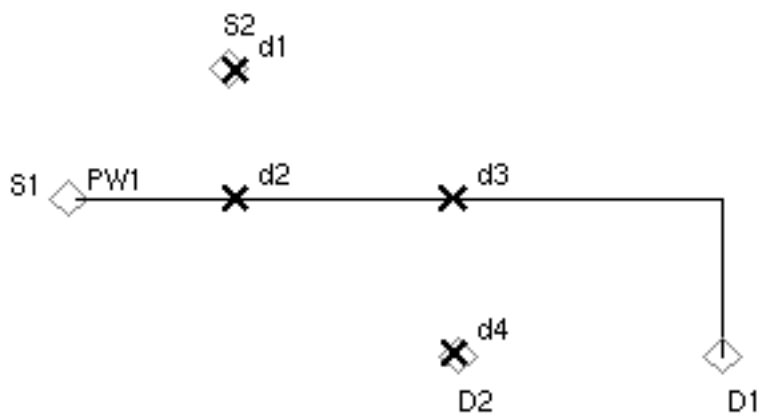
```
ROUTE CPIPE QUANTITY 2 DIAMETER 12 THICKNESS 1.2 MATERIAL CUT TAG  
CP2 : Select Source MODEL ent d1 Select Path MODEL loc
```

select locations d2 and d3 as shown in the following figure.

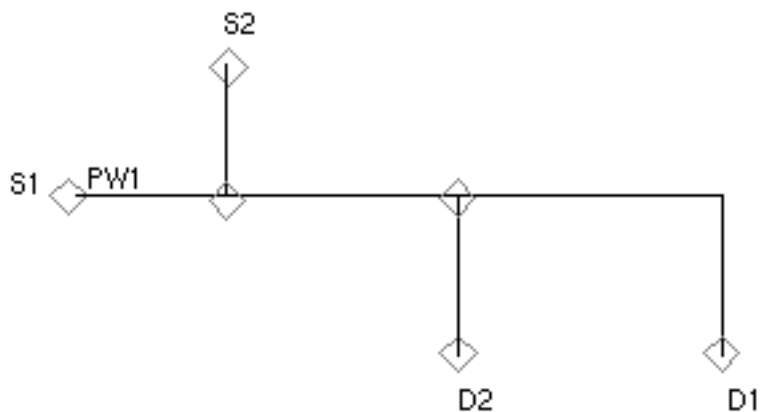
10. In response to the following prompt on the screen,

```
ROUTE CPIPE QUANTITY 2 DIAMETER 12 THICKNESS 1.2 MATERIAL CUT TAG  
CP2 : Select Source MODEL ent d1 Select Path MODEL loc d2 d3 ;  
Select Destination MODEL ent  
select location d4 as shown in the following figure.
```

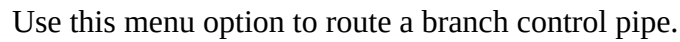
BEFORE



AFTER



Two new control pipe passageway segments are routed between points d1 and d2, d3, and d4.

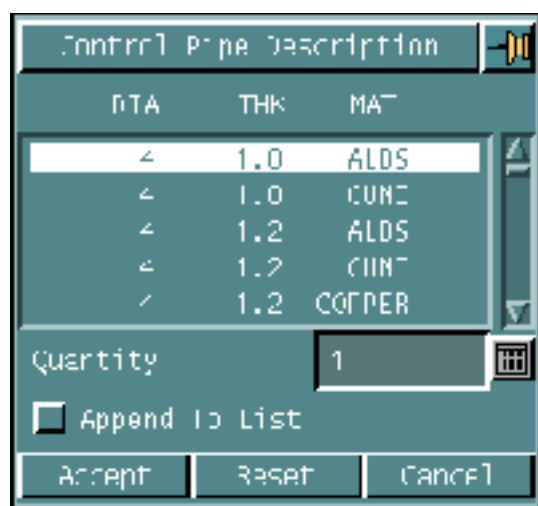


- The Branch Control Pipe Routing property sheet appears.

3-21

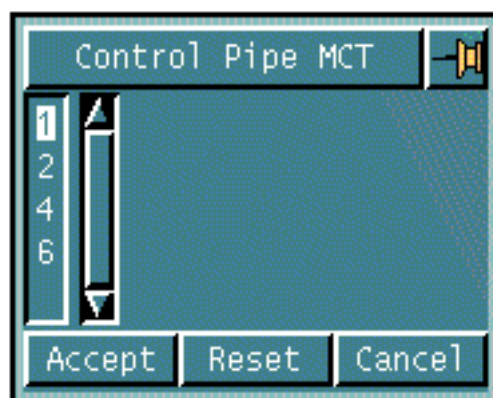
2. Choose the Description List toggle and the editor button.

The Control Pipe Description run time list appears.



3. Choose the MCT toggle and then the editor button.

The Control Pipe MCT run time list appears.



4. Choose the Specify Parameters toggle and the Options pushbutton

The Control Pipe Parameter menu appears.



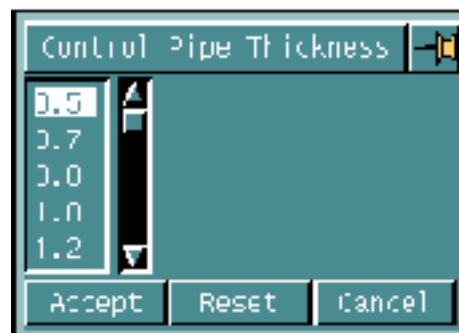
5. Choose the Diameter editor button.

The Control Pipe Diameter run time list appears.



6. Choose a diameter and choose the Accept button.
7. On the Control Pipe Parameters, choose the Thickness editor button.

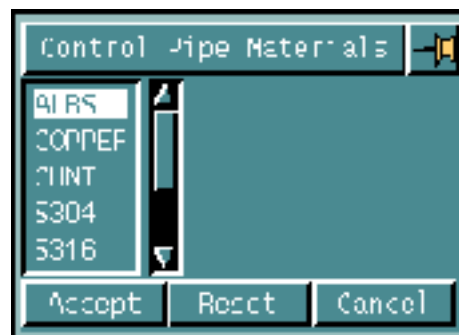
The Control Pipe Thickness run time list appears.



8. Choose a thickness and choose the Accept button.

9. On the Control Pipe Parameters menu, choose the Material editor button.

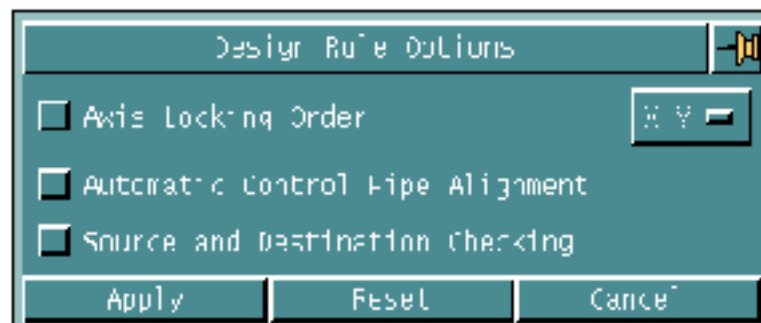
The Control Pipe Material run time list appears.



10. Choose a material and choose the Accept button.

11. On the Branch Control Pipe Routing property sheet, choose the Design Rule Checking toggle.

The Design Rule Options menu appears.



12. Choose the Axis Locking Order toggle.

The Axis Locking Order option list appears.



13. On the Control Pipe Parameters menu, choose the Accept button.

14. On the Branch Control Pipe Routing property sheet, choose the Apply button.

Routing Control Pipe Segments



Use this menu option to route control pipe segments along a passageway.

1. Choose the Route Control Pipe Segment option.

The Control Pipe Segment Routing property sheet appears.

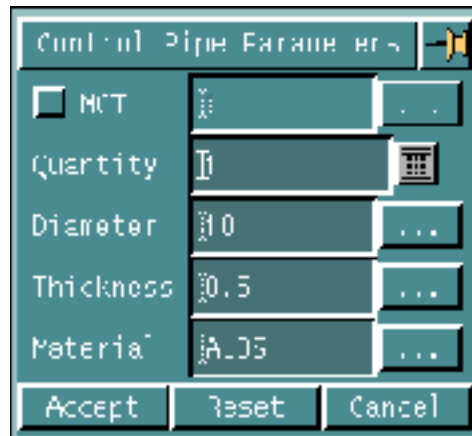
2. Choose the Description List toggle and the editor button.

The Control Pipe Description run time list appears.

MCT	DIA	THK	MATL
1	6	0.8	COPPER
1	8	0.5	S304
1	8	0.7	CUNI
1	8	1.0	S304
1	8	1.0	COPPER

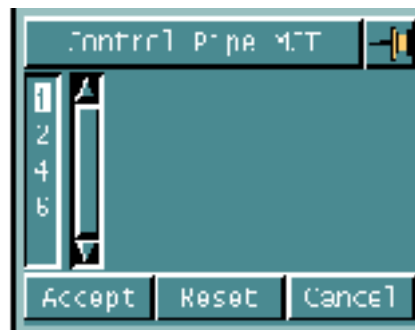
3. Choose the Specify Parameters toggle and the Options pushbutton.

The Control Pipe Parameters menu appears.



4. Choose the MCT toggle and the editor button.

The Control Pipe MCT run time list appears.



5. On the Control Pipe Parameters menu, choose the Diameter editor button.

The Control Pipe Diameter run time list appears.



6. Choose a diameter and choose the Accept button.

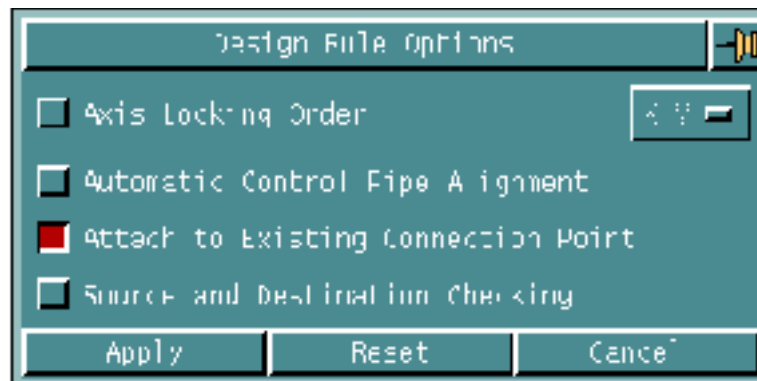
7. On the Changing Control Pipe Parameters, choose the Thickness editor button.
The Control Pipe Thickness run time list appears.



8. Choose a thickness and choose the Accept button.
9. On the Changing Control Pipe Parameters, choose the Material editor button.
The Control Pipe Material run time list appears.



10. Choose a material and choose the Accept button.
11. On the Control Pipe Segment Routing property sheet, choose the Design Rule Checking toggle and the Options pushbutton.
The Design Rule Options menu appears.



12. Choose the Axis Locking Order toggle and then the Options pushbutton.

The Axis Locking Order option list appears.



13. On the Control Pipe Parameters menu, choose the Accept button.

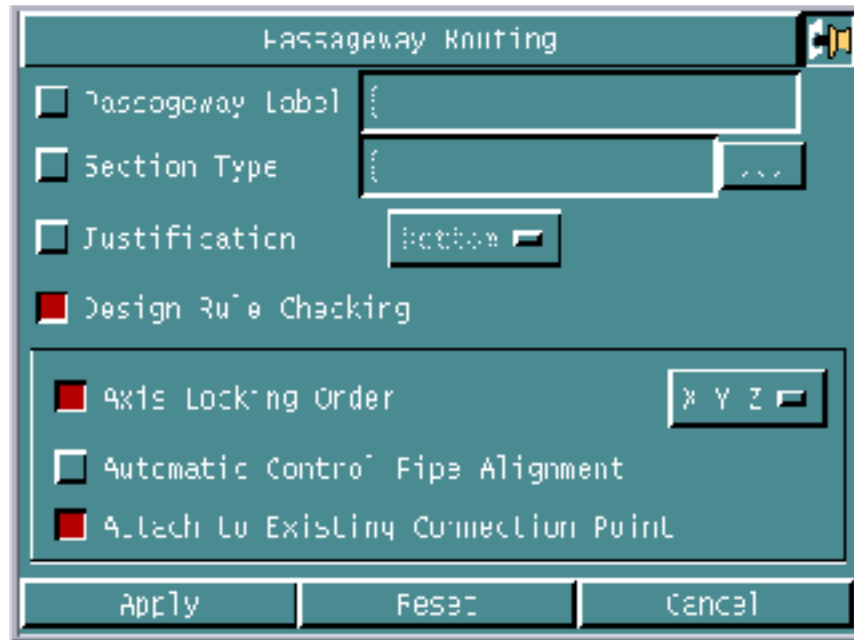
14. On the Control Pipe Segment Routing property sheet, choose the Apply button.

Routing a Passageway Without Control Pipes



Use this menu option to route a passageway without control pipes.

1. Choose the Route Passageway Without Control Pipes option.
The Passageway Routing property sheet appears.



2. On the Passageway Routing property sheet, choose the Design Rule Checking toggle.

The Design Rule Options menu appears.



3. Choose the Axis Locking Order toggle.

The Axis Locking Order option list appears.



4. On the Control Pipe Parameters menu, choose the Accept button.
5. On the Passageway Routing property sheet, choose the Apply button.

Clearing Control Pipe Marking



Use this menu option to directly clear the passageway markings created while routing or reporting the control pipes.

Choose the Clear Highlighting option. The highlighting is removed from all highlighted entities.

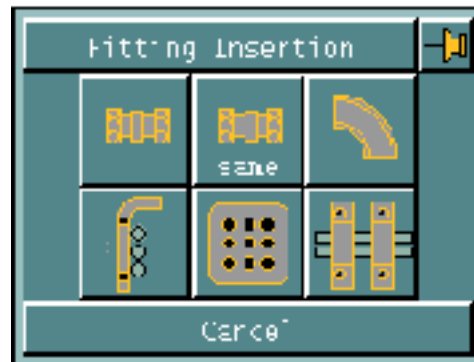
Inserting Control Pipe and Passageway Fittings



Use this menu option to insert control pipe and passageway fittings in existing control pipes or passageways.

1. Choose the Insert Control Pipe Fitting option.

The Fitting Insertion command palette appears.



Insert Control Pipe Fittings



Use this menu option to insert control pipe fittings with options.

1. Choose the Insert Control Pipe Fitting option.

The Control Pipe General Fitting Insertion property sheet appears.

Control Pipe General Fitting Insertion

Fitting Name: TBRGS

☐ Branch Size

Branch Fitting Orientation Options

☒ Run to Branch

☐ Branch to Run

☐ In-Line

☐ Stem Orientation: North

☐ Rotation Angle: 0.000

☐ Fitting Justification: Near

☐ Trim Elbow Fitting

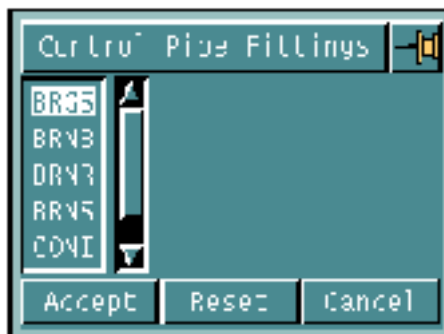
☐ Creation Layer: 1-1

☐ Control Pipe Tag

Apply Reset Cancel

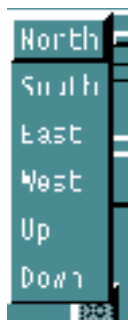
2. Choose the Fitting Name button.

The Fitting Name run time list appears



3. Choose the Stem Orientation toggle and the Option list button.

The Stem Orientation option list appears.



4. Choose the Fitting Justification toggle and the Option list button.

The Fitting Justification option list appears.



Please note: The following options are not available for selection when you choose the Run To Branch or Branch To Run toggles.

- Stem Orientation
- Fitting Justification
- Rotation Angle

5. Click the Control Pipe Tag option to specify a tag for the fitting

Please note: You can also insert control pipe fittings on a passageway that already contains more than one control pipe.

Inserting an Identical Control Pipe or Passageway Fitting (Direct Action)



Use this menu option to directly insert a control pipe or passageway fitting same to an existing control pipe or passageway fitting.

1. Choose the Insert the Same Fitting option.

The system prompts you to select the fitting you want to duplicate and a control pipe or passageway in which to put it.

2. Select the desired fitting and control pipe or passageway.

The chosen fitting is duplicated and inserted in the selected control pipe or passageway.

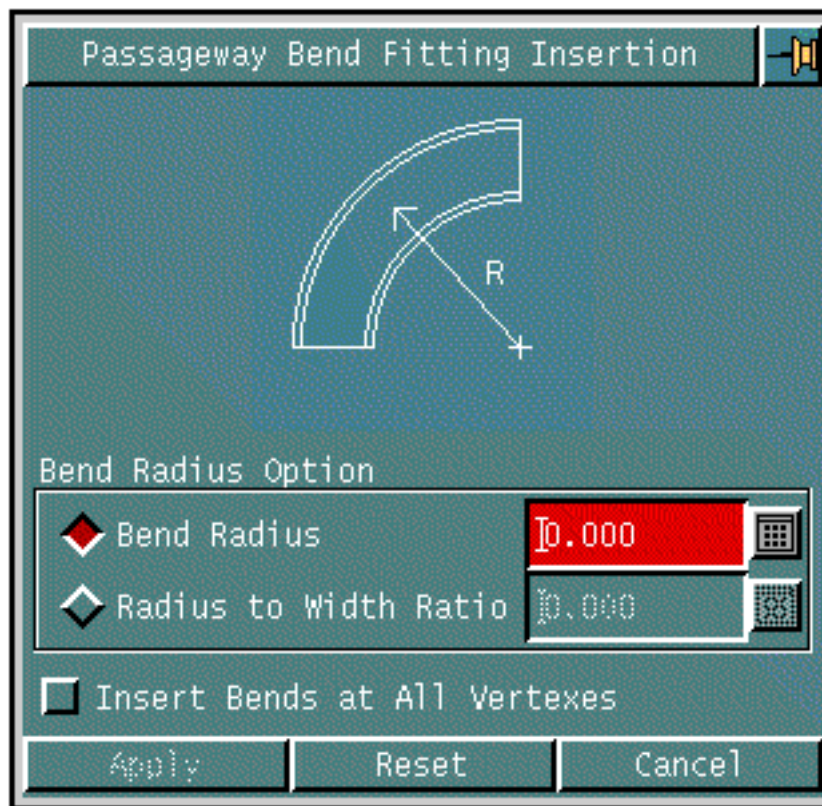
Inserting Bend Fitting In a Passageway



Use this menu option to insert a bend fitting in the selected passageway.

1. Choose the Insert Bend Fitting in a Passageway icon.

The Passageway Bend Fitting Insertion property sheet appears.



2. Choose either of the Bend Radius Option

Choose the Bend Radius option to specify the Radius of the bend to be inserted.

Choose the Radius to Width Ratio option to specify the ratio of bend radius to the passageway width

3. Enter the layer on which to create the bend fitting.
4. Click the Insert Bends at All Vertexes option, to insert bends at all the vertices of the selected control pipe automatically.
5. Choose the Apply button.

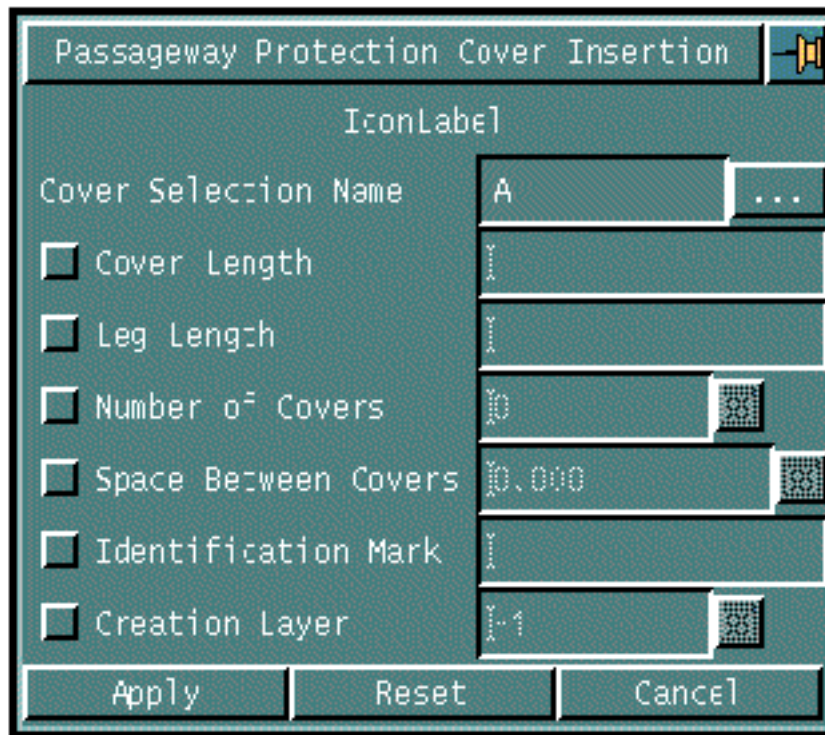
Inserting Protection Covers In Passageway



Use this menu option to insert protection covers in a passageway.

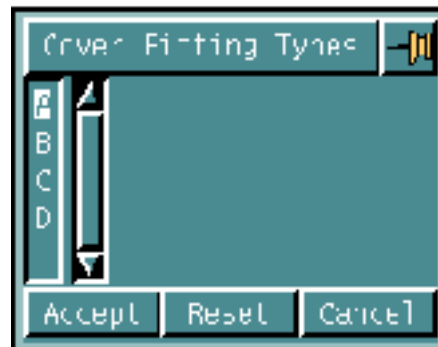
1. Choose the Insert Protection Covers in Passageway option.

The Passageway Protection Cover Insertion property sheet appears



2. Choose the Cover Selection Name button and then the Options button.

The Cover Fitting Types run time list appears.



3. Choose a name from the list box.
4. Choose the Cover Length button and enter a cover length.

5. Choose the Identification Mark button and enter an identification mark.
6. Choose the Creation Layer button and enter a layer number.
7. Choose the Apply button.

Inserting a Penetration Piece in a Passageway



Use this menu option to insert a penetration piece in a passageway.

1. Choose the Insert Penetration Piece in Passageway option.

The Passageway Penetration Piece Insertion property sheet appears.

Passageway Penetration Piece Insertion

Diagram showing dimensions: W, H, t.

☐ Select Parameters from Auto-selection file

Part Name: PEN

Form Part Name: PEN

☐ Penetration Description: PEN

☐ Connection Type: PEN

☐ Identification Mark: PEN

☐ Plate Height: PEN

☐ Plate Width: PEN

☐ Plate Thickness: PEN

☐ Fillet Radius: PEN

☐ Material of Construction: PEN

☐ Density: 0.000

☐ Correction Layer: PEN

Apply Reset Cancel

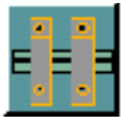
2. If desired, choose the Choose Parameters from Auto-selection File button.

The Penetration Types run time list appears.

Please note: This property sheet has a unique behavior. When you deselect the Select Parameters from Autoselection File toggle, the property sheet appearance changes

- 3. If you want to specify parameters, choose the desired parameters and enter the appropriate values for them.
- 4. Choose the Apply button.

Inserting a Strap In a Passageway



Use this menu option to insert straps into a passageway.

- 1. Choose the Insert Strap in Passageway option.
The Passageway Strap Insertion property sheet appears.

Passageway Strap Insertion

1 2 ... n

☐ Identification Mark

☐ Strap Width

☐ Strap Thickness

☐ Quantity

☐ Pitch Distance

☐ Material Of Construction

☐ Creation Layer

Apply

Reset

Cancel

2. Choose the desired parameters and enter the appropriate values for them.
3. Choose the Apply button.

Inserting Control Pipe Supports



Use this menu option to insert passageway supports at the selected locations on control pipe passageways.

1. Choose the Insert Control Pipe Supports option.

The Passageway Support Insertion property sheet appears.

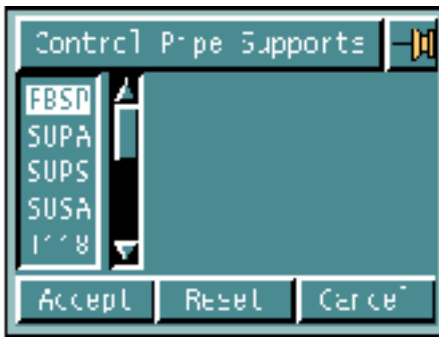
A screenshot of the 'Passageway Support Insertion' dialog box. The title bar reads 'Passageway Support Insertion' with a small icon on the right. The dialog contains several fields and checkboxes. The 'Support Name' field is set to 'IFBSP' and has a dropdown arrow. Below it are checkboxes for 'Identification Mark', 'Support Tray Length', 'Number of supports', 'Space Between Supports', 'Support Orientation', 'Rotation Angle', 'Creation Layer', 'Flat Bar Support Leg Span', and 'Flat Bar Support Leg Length'. Each checkbox has a corresponding input field. The 'Support Orientation' field is set to 'North' with a small arrow icon. At the bottom are three buttons: 'Apply', 'Reset', and 'Cancel'.

Property	Value
Support Name	IFBSP
Identification Mark	I
Support Tray Length	10.000
Number of supports	10
Space Between Supports	10.000
Support Orientation	North
Rotation Angle	10.000
Creation Layer	I-1
Flat Bar Support Leg Span	I
Flat Bar Support Leg Length	I

2. Choose the Support Name editor button.

The Control Pipe Supports option list appears.

Please note: The supports are read from the auto-selection file, specified by the keyword SUPPORT in the directory file.



3. Choose the Support Orientation toggle and the Option list button.
The Support Orientation option list appears.



4. Choose the Number of Supports toggle to specify the number of supports that must be inserted. This option must be used with the Space Between Supports option.
5. Choose the Space Between Supports toggle to specify the distance between supports. If you do not specify a spacing value, the default spacing of 20mm will be considered.
6. Choose the Rotation Angle toggle and click on the calculator to specify the rotation angle value.
7. Choose Creation Layer toggle to specify a layer number.
8. Choose Flat Bar Support Leg Span to specify the distance between the flat bar support legs.
9. Choose Flat Bar Support Leg Length to specify the length of the flat bar support legs.
10. Choose the Apply button.

Inserting an Identical Control Pipe Support



Use this menu option to directly insert a control pipe fitting identical to an existing control pipe fitting.

1. Choose the Insert Identical Control Pipe Fitting option.

The systems prompts you to select an existing control pipe fitting.

A new control pipe fitting with parameters the same as those of the selected control pipe fitting is inserted at the selected location.

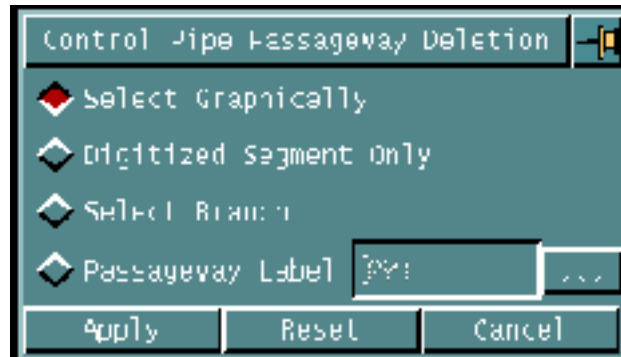
Deleting Control Pipe Passageways



Use this menu option to delete selected control pipe passageways with options.

1. Choose the Delete Control Pipe Passageway option.

The Control Pipe Passageway Deletion property sheet appears.



2. Choose the Select Graphically toggle to digitize the passageways to be deleted.
3. Choose the Select Branch toggle to delete only the digitized branch passageway.
4. Choose the Passageway Label toggle and enter the label in the fill-in field to delete the specified passageway or choose the editor button.

The Passageway Labels run-time list appears.



5. Choose the passageway label from the list.
6. Choose the Accept button.
7. Choose the Apply button to delete the selected passageway.

Deleting Control Pipe Passageways (Direct Action)



Use this menu option to directly delete a selected control pipe passageway.

Use this menu option to directly delete a selected control pipe passageway.

1. Choose the Delete a Passageway option.

The system prompts you to select the passageway.

2. Select the passageways to be deleted on the drawing.

The selected passageways are deleted as well as all the control pipes running in those passageways.

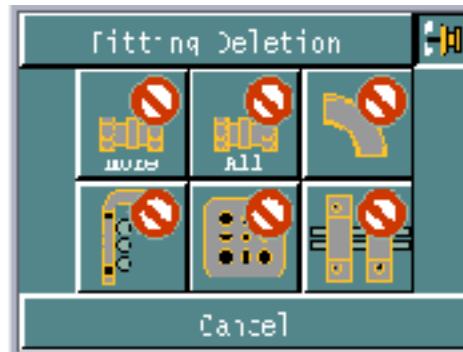
Deleting Control Pipe Passageway Fittings



Use this menu option to delete the selected control pipe fittings from passageways.

1. Choose the Delete Control Pipe Fittings option.

The Fitting Deletion command palette appears.



Delete Control Pipe Fittings



Use this menu option to delete control pipe fittings with options.

1. Choose the Delete Control Pipe Fittings option.

The Control Pipe Fitting Deletion property sheet appears.



2. Choose a method for identifying the fittings you want to delete.

If you chose to specify the passageways by labels, the Passageway Labels run-time list appears.



3. Choose the labels of the fittings you want to delete.

4. Choose the fitting types you want to delete.
5. Choose the Apply button.

Deleting All Fittings In Passageways



Use this menu option to directly delete all fittings in the selected passageways.

1. Select a passageway.
2. Choose the Delete All Fittings in Passageways direct action option.
All the fittings in the selected passageway are deleted.

Deleting All Bend Fittings In Passageways



Use this menu option to directly delete all bend fittings in the selected passageways.

1. Select a passageway.
2. Choose the Delete All Bend Fittings in Passageways direct action option.
All the bend fittings in the selected passageway are deleted.

Deleting All Protection Covers In Passageways



Use this menu option to delete all protection covers attached to the selected passageways.

1. Select a passageway.
2. Choose the Delete All Protection Covers in Passageways direct action option.
All the protection covers in the selected passageway are deleted.

Deleting All Penetration Pieces In Passageways



Use this menu option to directly delete all penetration pieces attached to the selected passageways.

1. Select a passageway.
2. Choose the Delete All Penetration Pieces in Passageways direct action option.

All the penetration pieces in the selected passageway are deleted.

Deleting All Straps In Passageways



Use this menu option to delete all control pipe straps attached to the selected passageways.

1. Select a passageway.
2. Choose the Delete All Straps in Passageways direct action option.

All the strap fittings in the selected passageway are deleted.

Deleting Control Pipes and Passageway Fittings (Direct Action)



Use this menu option to directly delete selected control pipes and passageway fittings.

1. Choose the Delete Control Pipes and Passageway Fittings option.
2. Select the control pipes and passageway fittings to be deleted on the drawing.
The selected control pipes and passageway fittings are deleted.

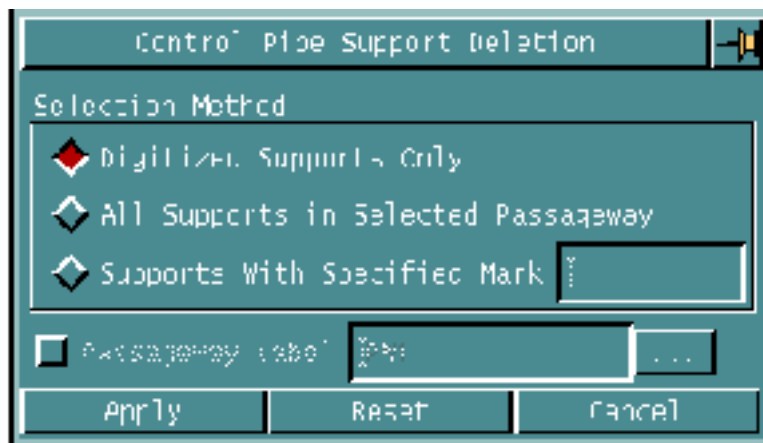
Deleting Control Pipe Supports



Use this menu option to delete control pipe supports.

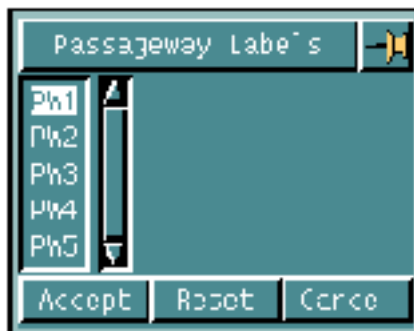
1. Choose the Delete Control Pipe Supports option.

The Control Pipe Support Deletion property sheet appears.



2. Choose method of selecting the supports to be deleted.

If you chose specifying the passageway label as the deletion method, the Passageway Labels run-time list appears.



3. Choose the passageway labels for the supports you want to delete.
4. Choose the Accept button.

Deleting Control Pipe Supports (Direct Action)



Use this menu option to directly delete selected control pipe supports.

1. Choose the Delete Control Pipe Support direct action option.
The system prompts you to select the supports to be deleted.
2. Select the supports to delete.
The supports you selected are deleted.

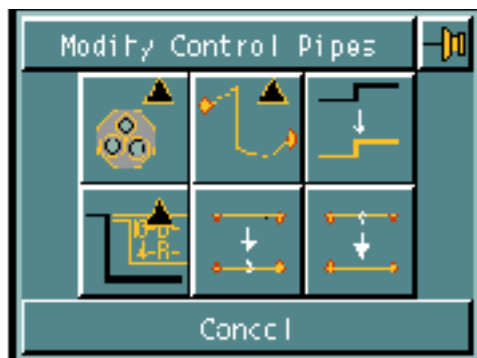
Modifying Control Pipes



This menu option displays the command palette you use to modifying control pipe parameters and change passageway labels and layers.

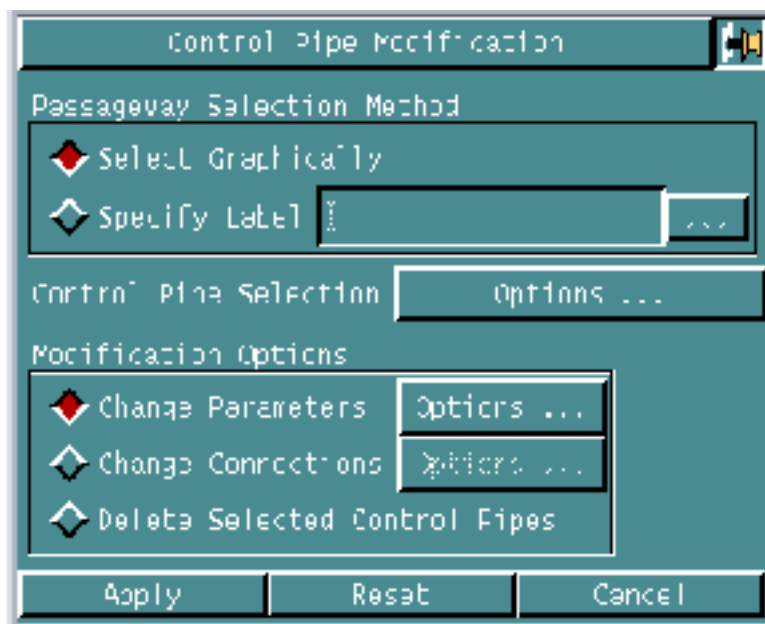
1. Choose the Modify Control Pipe option.

The Modify Control Pipes command palette appears.



2. Choose the Modify Control Pipes option to modify various control pipe parameters.

The Control Pipe Modification property sheet appears.



3. To choose the passageway to be modified graphically, choose the Select Graphically toggle and choose the Control Pipe Tags button.

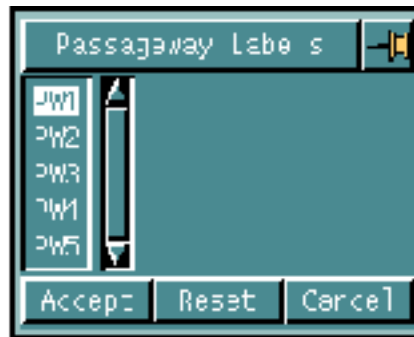
The following prompt appears. Select the passageway containing the control pipes to be modified.

Digitize Passageway : Model ent d1

Alternatively, you can choose the passageway by specifying its label.

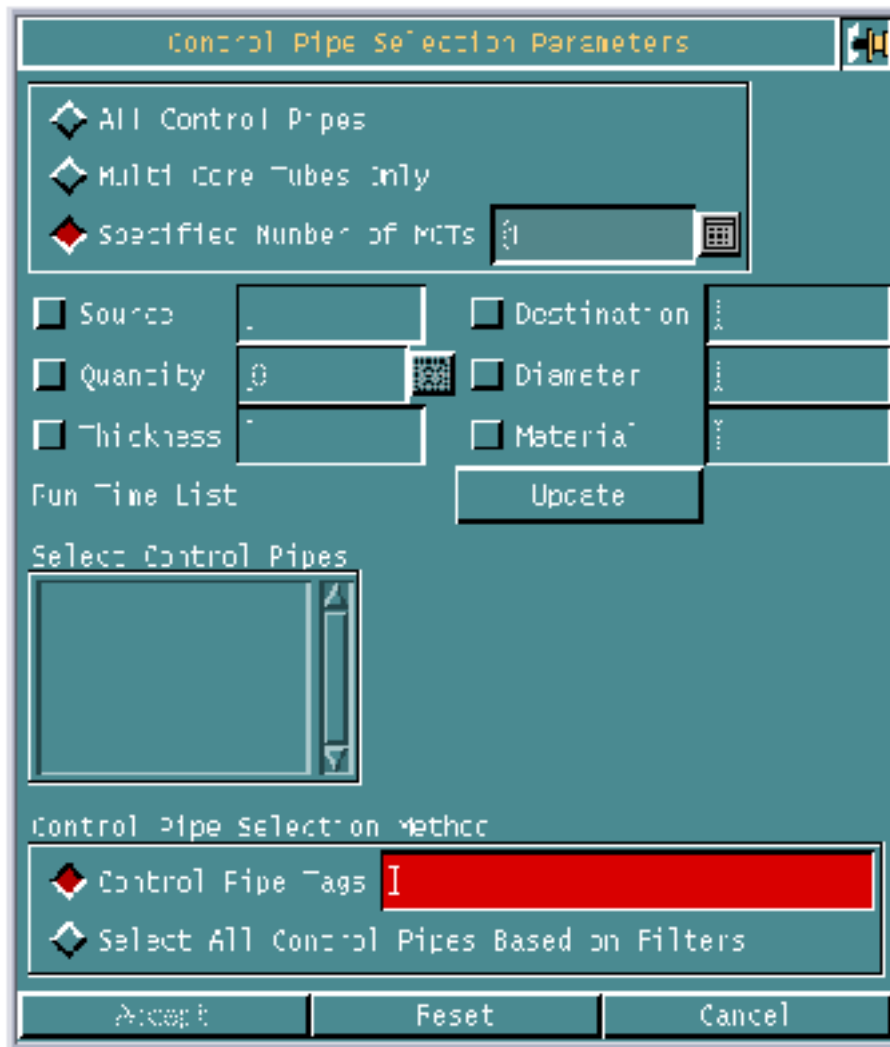
4. To choose the passageway to modify by specifying a label, choose the Label toggle.

The Passageway Labels run-time list appears.



5. Choose the desired label name from the list.
6. Choose the Accept button.

The Control Pipe Selection Parameters property sheet appears.



The description label of all the control pipes in the selected passageway is listed under Select Control Pipes scroll list, as in the above property sheet above.

7. Choose the required control pipes by scrolling through the Select Control Pipes scroll list.
8. Choose the Accept button.

The selected control pipe tags are automatically filled in the Control Pipe Tags fill-in field in the main menu.

9. To filter the control pipe description labels listed under the Select Control Pipes scroll list, specify the filtering parameters in MCT Selection Radioset, Source, Destination, Quantity, Thickness fill-in fields as shown above.
10. Choose the Run Time List Update button.

11. To redisplay the list of all the control pipes in the Select Control Pipes scroll list, choose the Update button.
12. To change the control pipe parameters, choose Change Parameters toggle and choose the Options button.

The Changing Control Pipe Parameters property sheet appears.



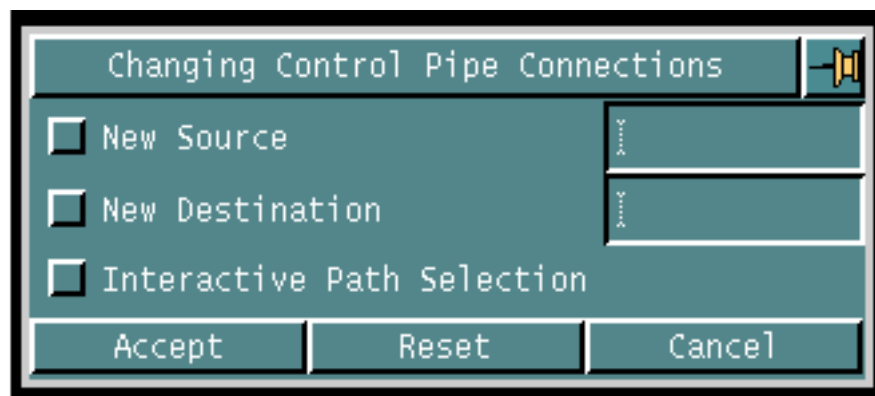
The dialog box titled "Changing Control Pipe Parameters" contains several options and input fields. It has a title bar with a standard window icon. The options include:

- ☐ MCT
- ☐ Change Quantity
- ☒ Relative quantity (with a red diamond icon)
- ☒ Absolute quantity (with a black diamond icon)
- ☐ Diameter
- ☐ Thickness
- ☐ Material
- ☐ Control Pipe Tag
- ☐ Tier

Each option has a corresponding input field. The "Relative quantity" and "Absolute quantity" options have a small grid icon to their right. The "Diameter", "Thickness", and "Material" options have a small "..." button to their right. At the bottom are three buttons: "Accept", "Reset", and "Cancel".

13. To change control pipe source (or destination), choose the Change Connections toggle and choose the Options button from the Control Pipe Modification property sheet.

The Changing Control Pipe Connections property sheet appears.



The dialog box titled "Changing Control Pipe Connections" contains three options and input fields. It has a title bar with a standard window icon. The options include:

- ☐ New Source
- ☐ New Destination
- ☐ Interactive Path Selection

Each option has a corresponding input field. The "New Source" and "New Destination" options have a small "..." button to their right. At the bottom are three buttons: "Accept", "Reset", and "Cancel".

14. Enter the new source (or destination) name. You can also specify the path interactively by clicking on the Interactive Path Selection option

15. Choose the Accept button.

Example 1

This example selects a set of control pipes identified by the tag name CP1 in the selected passageway and modifies the diameter, material, and thickness according to the specified values.

Perform the following steps:

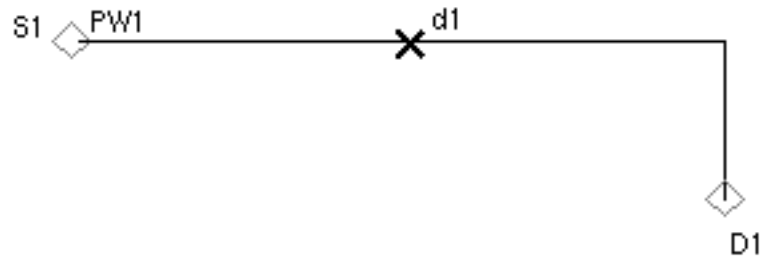
1. Choose the Control Pipe option on the Environment Access menu.
2. Choose the Modeling option on the Task Set Access menu.
3. Choose the Modify Control Pipe option from the Modeling Task Set.

The Control Pipe Routing property sheet appears.

The screenshot shows the 'Control Pipe Routing' dialog box. It has a title bar with the text 'Control Pipe Routing' and a standard window icon. The dialog is divided into several sections:

- Control Pipe Specification:** Contains two radio buttons. 'Specify Description' is selected and has a red rectangular highlight. 'Specify Parameters' is unselected and has a 'Specify...' button next to it.
- Control Pipe Details:** Contains four checkboxes: 'Identifier Tag', 'Source', 'Destination', and 'Justification'. Each checkbox has a corresponding text input field to its right. A 'Control' button is located at the bottom right of this section.
- Passageway Details:** Contains four checkboxes: 'Passageway Label', 'Section Type', 'Tier Number', and 'Justification'. Each checkbox has a corresponding text input field to its right. A 'Section' button is located at the bottom right of this section.
- Design Rule Checking:** Contains an unchecked checkbox and a 'Options...' button.
- Buttons:** At the bottom of the dialog are three buttons: 'Apply', 'Reset', and 'Cancel'.

4. In the Modify Control Pipe property sheet, Choose the Select option and then choose Tag.
5. Enter CP1 as the tag name in the Tag field.
6. Choose Change and choose Diameter, Material, and Thickness.
7. Enter 6 as the diameter in the Diameter field.
8. Enter CUT as the material in the Material field.
9. Enter 1.4 as the thickness in the Thickness field.
10. Choose the Apply button.
11. In response to the following prompt on the screen,
MODIFY CPIPE SELECT TAG CP1 CHANGE DIAMETER 6 MATERIAL CUT
THICKNESS 1.4 : Select Passageway MODEL ent
select location d1, as shown in the figure below.



All the control pipes identified by the tag name CP1 in the selected passageway are selected and the diameter, material, and thickness are modified, as shown in Table 3-2 AFTER.

Table 3-1 BEFORE

LABEL	FROM	TO	MCT	QTY	DIA	THK	MATL	TAG
PW1	S1	D1		6	10	1.2	SS316	CP1
PW1	S1	D1		6	16	1.2	SS316	CP2

Table 3-2 AFTER

LABEL	FROM	TO	MCT	QTY	DIA	THK	MATL	TAG
PW1	S1	D1		6	6	1.4	CUT	CP1
PW1	S1	D1		6	16	1.2	SS316	CP2

Example 2

This example selects all the control pipes with diameter of 4 and material as CUT in the identified passageway PW1 and deletes them.

1. Choose Control Pipe on the Environment Access menu.
2. Choose Modeling on the Task Set Access menu.
3. Choose the Modify Control Pipe option from the Modeling Task Set.

The Control Pipe Routing property sheet appears.

4. In the Modify Control Pipe property sheet, Choose **Select** and then choose Pwlabel.
5. Enter PW1 as the passageway label in the Pwlabel field.
6. Choose Change, Diameter, and Material.
7. Enter 4 as the diameter in the Diameter field.
8. Enter CUT as the material in the Material field.
9. Choose the Apply button. The following prompt appears on the screen.

MODIFY CPIPE SELECT PWLABEL PW1 DIAMETER 4 MATERIAL CUT DELETE

All the control pipes with diameter as 4 and material as CUT in the identified passageway PW1 are deleted.

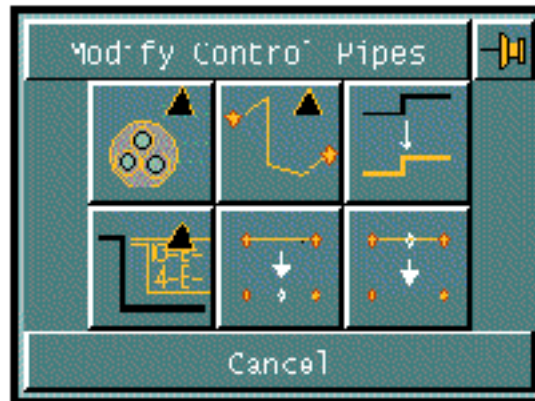
Example 3

This example selects all the control pipes with CP2 as the tag name in the identified passageway and connects them to the source SRC1 in the passageway.

1. Choose the Control Pipe option on the Environment Access menu.
2. Choose the Modeling option on the Task Set Access menu.

3. Choose the Modify Control Pipe option from the Modeling Task Set.

The Modify Control Pipe command palette appears.



4. In the Modify Control Pipe property sheet, choose the Select Label option.

5. Enter CP2 as the tag name in the Tag field.

6. Choose Source.

7. Enter SRC1 as the source in the Source field.

8. Choose the Apply button.

9. In response to the following prompt on the screen,

```
MODIFY CPIPE SELECT TAG CP2 CONNECT SOURCE SRC1 : Select Passageway
MODEL ent
```

select the model location on the screen.

All the control pipes with CP2 as the tag name in the identified passageway are connected to the source SRC1 in the passageway.

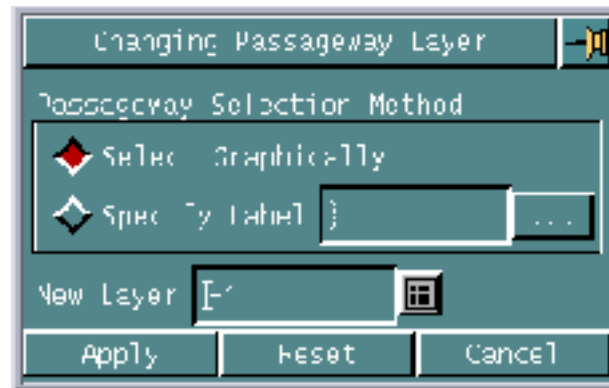
Changing Passageway Layer



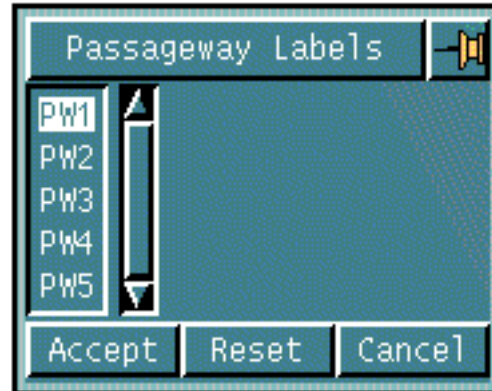
Use this menu option to change a passageway layer.

1. Choose the Change Passageway Layer option.

The Changing Passageway Layer property sheet appears.



The Passageway Labels run-time list appears.



2. Choose the passageway on which you want to change layers.
3. Choose the Apply button.

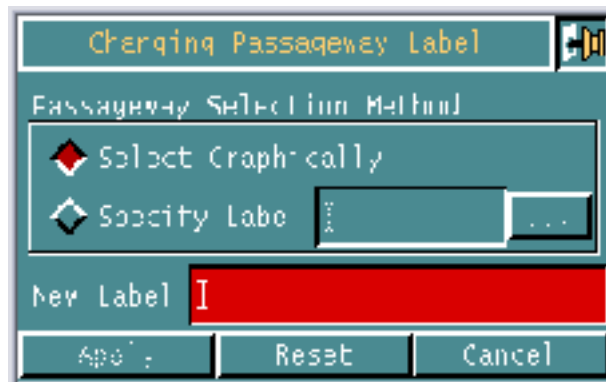
Changing Passageway Label



Use this menu option to change a passageway label.

1. Choose the Change Passageway Label option.

The Changing Passageway Label property sheet appears.



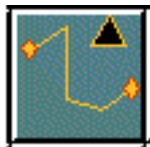
2. Choose the passageway graphically or by specifying the label to be modified.

The Changing Passageway Label Passageway Labels run-time list appears.



3. Choose the label you want to modify.
4. Choose the Apply button.

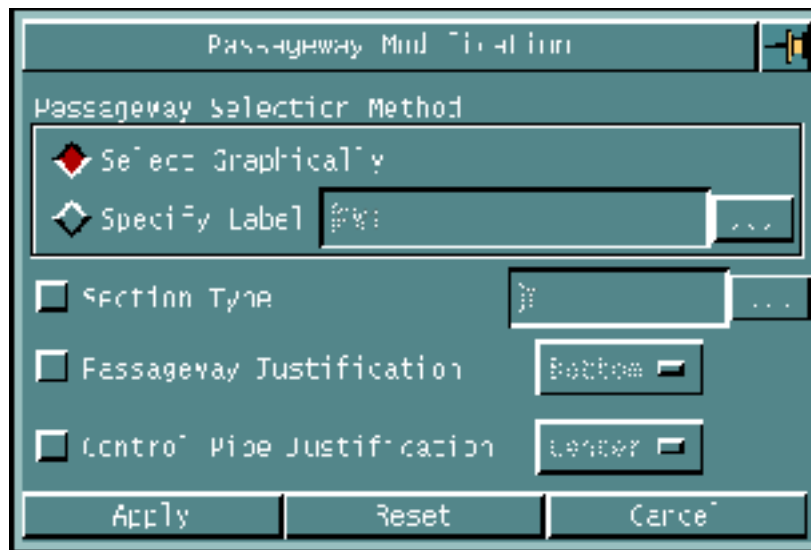
Changing Control Pipe Passageway Parameters



Use this menu option to modify control pipe passageway parameters, such as section type and justifications.

1. Choose the Change Passageway Parameters option.

The Passageway Modification property sheet appears.



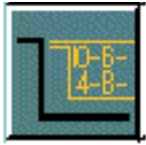
Choose the Specify Label toggle and the editor button.

The Passageway Labels run time list appears.



2. Choose a passageway label and the Accept button.
3. Choose the Passageway Justification toggle.
4. Choose the Apply button.

Generating Control Pipe Labels



Use this menu option to generate control pipe labels.

1. Choose the Generate Control Pipe Labels option.

The Control Pipe Label Generation property sheet appears.

Control Pipe Label Generation

☒ Generate Label in Default Format

☐ Generate Consolidated Label

☐ Include Only Selected Parameters

☐ Destination ☐ Diameter

☐ Material ☐ MCT

☐ Passageway Label ☐ Quantity

☐ Source ☐ Control Pipe Tag

☐ Tier ☐ Thickness

☒ Leader Line

Apply Reset Cancel

2. Choose the Include only selected Parameters toggle to selectively specify the label parameters. When this option is selected, the following parameter checkboxes become active and are available for selection.
 - Destination
 - Material
 - Passageway Label
 - Source
 - Tier
 - Diameter
 - MCT
 - Quantity

- Control pipe Tag
- Thickness

3. When you choose any of the parameters listed above a field is automatically be created for the control pipe label and a label with a specified parameters is created.

You can select the fields and a label of only the selected fields is displayed. The control pipe label display format is fixed as shown below.

MCT-QUANTITY-DIAMETER-THICKNESS-MATERIAL-TAG-SOURCE-DESTINATION-TIER-PASSAGEWAYLABEL .

For example if the Diameter, Material and Source are selected then the label will be displayed as DIAMETER-MATERIAL-SOURCE.

4. Choose the Apply button to create the label.

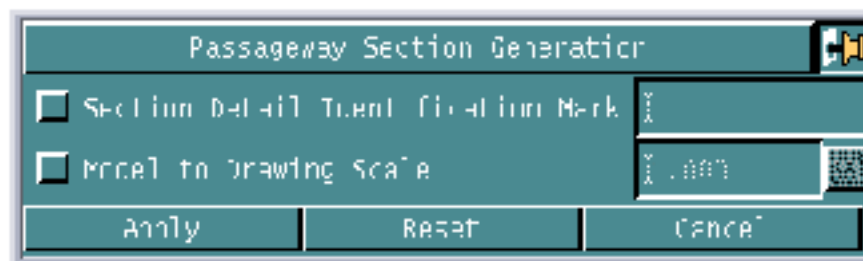
Generating Cross-section Detail of Control Pipe Arrangement



Use this menu option to generate cross-section detail representation of a control pipe arrangement.

1. Choose the Generate Cross-Section Detail of Control Pipe Arrangement option.

The Passageway Section Generation property sheet appears.



2. Choose the Section Detail Identification Mark button and enter an identification mark.
3. Choose the Model to Drawing Scale button and enter the desired value.
4. Choose the Apply button.

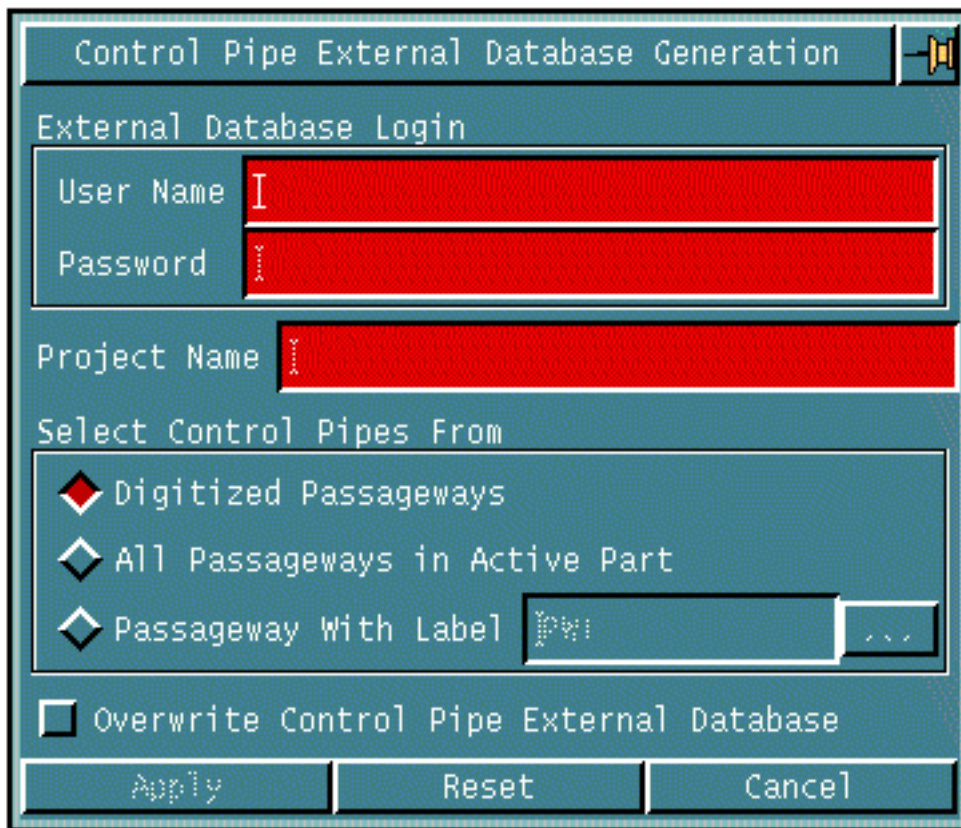
Writing Control Pipe Attributes to an External Database



Use this menu option to extract various control pipe attributes from the CADDSS graphical database to an external database.

1. Choose the Generate Control Pipe External Database option.

The Control Pipe External Database Generation property sheet appears.



Control Pipe External Database Generation

External Database Login

User Name

Password

Project Name

Select Control Pipes From

☒ Digitized Passageways

☐ All Passageways in Active Part

☐ Passageway With Label

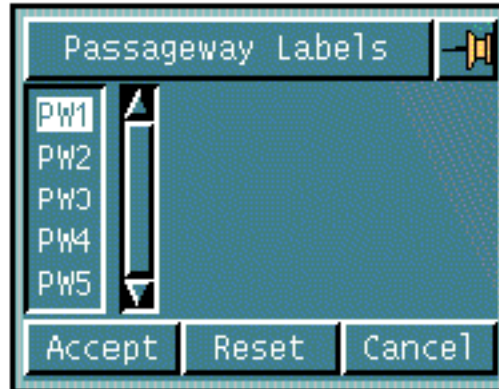
☐ Overwrite Control Pipe External Database

Apply Reset Cancel

2. Enter your username and password.
3. Enter the project name.

4. Choose a method for identifying the control pipe passageway.

If you chose specifying the passageway label as the deletion method, the Passageway Labels run-time list appears.



5. Choose the appropriate label.
6. Choose the Accept button.

The Control Pipe External Database Generation property sheet reappears.
7. Choose the Apply button.

Generating Drawings of Control Pipe Passageway Fittings



Use this menu option to generate drawings of control pipe passageway fittings by reading the external database.

1. Choose the Generate Drawings of Control Pipe Passageway Fittings option.
The Control Pipe Drawing Generation property sheet appears.

A screenshot of the 'Control Pipe Drawing Generation' dialog box. It has a title bar with the text 'Control Pipe Drawing Generation' and a standard window icon. The dialog is divided into several sections: 'External Database Login' with fields for 'User Name' and 'Password'; 'Project Name' and 'Drawing Name' fields; a checkbox for 'Passageway Label'; 'Fitting Category Options' with checkboxes for 'Protection Covers', 'Penetration Pieces', 'Strap Fittings', and 'Supports'; 'Output Destination' with radio buttons for 'Display On Screen', 'Save as CADDS Part', 'Save as GDM File', and 'Plot On Device', plus a checkbox for 'Rotate 90 Degrees Before Plotting'; and a checkbox for 'Process Drawings in Batch Mode'. At the bottom are 'Apply', 'Reset', and 'Cancel' buttons. The 'User Name' and 'Password' fields, the 'Project Name' field, and the 'Plot On Device' radio button are highlighted with a red background.

2. Enter a user name and password to access the database.
3. Enter a project and drawing name.

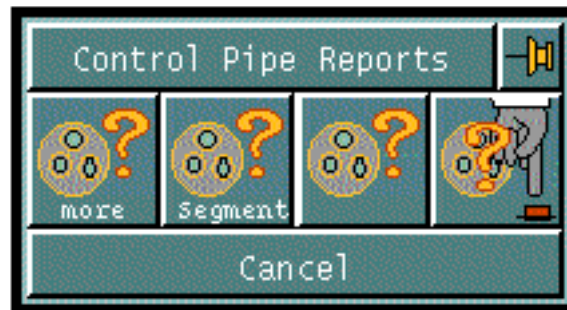
4. Choose the Passageway Label button and enter a label name.
5. Enter the desired fitting category options.
6. Enter the desired output destination options.
7. If desired, select the Process Drawings in Batch Mode button.
8. Choose the Apply button.

Generating Control Pipe Reports

Use this menu option to generate control pipe reports.

1. Choose the Generate Control Pipe Reports option. (See “Accessing Control Pipe Report Options” on page 1-17.)

The Control Pipe Reports command palette appears as shown below.



Generating Control Pipe Reports



Use this menu option to report on control pipes and control pipe fittings.

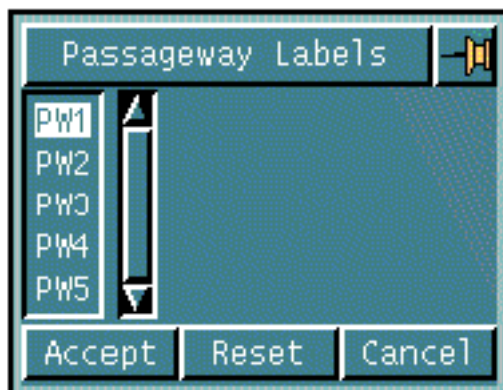
1. Choose the Generate Control Pipe Reports option.

The Control Pipe Report property sheet appears.

A screenshot of the 'Control Pipe Report' dialog box. The dialog has a title bar with the text 'Control Pipe Report' and a close button. It is divided into several sections. The first section is 'Passageway Selection Method' with four radio button options: 'Select Graphically' (selected), 'Digitized Segment Only', 'Specify Label' (with a text field containing 'PWI' and an 'Options...' button), and 'All Passageways in Active Part'. The second section contains three unchecked checkboxes: 'Control Pipe Selection Criteria' (with an 'Options...' button), 'Highlight Reported Control Pipes', and 'Highlight Connected Control Pipe Series'. The third section is 'Report Output' with a group box containing five options: 'Specify Format' (unchecked, with an 'Options...' button), 'Output to File' (unchecked, with a text field), 'Create New File' (selected), 'Append Existing File' (unchecked), 'Overwrite Existing File' (unchecked), and 'Output to screen' (unchecked). Below this group box is an unchecked checkbox 'Halt Before Clearing Branch Numbers'. At the bottom are three buttons: 'Apply', 'Reset', and 'Cancel'.

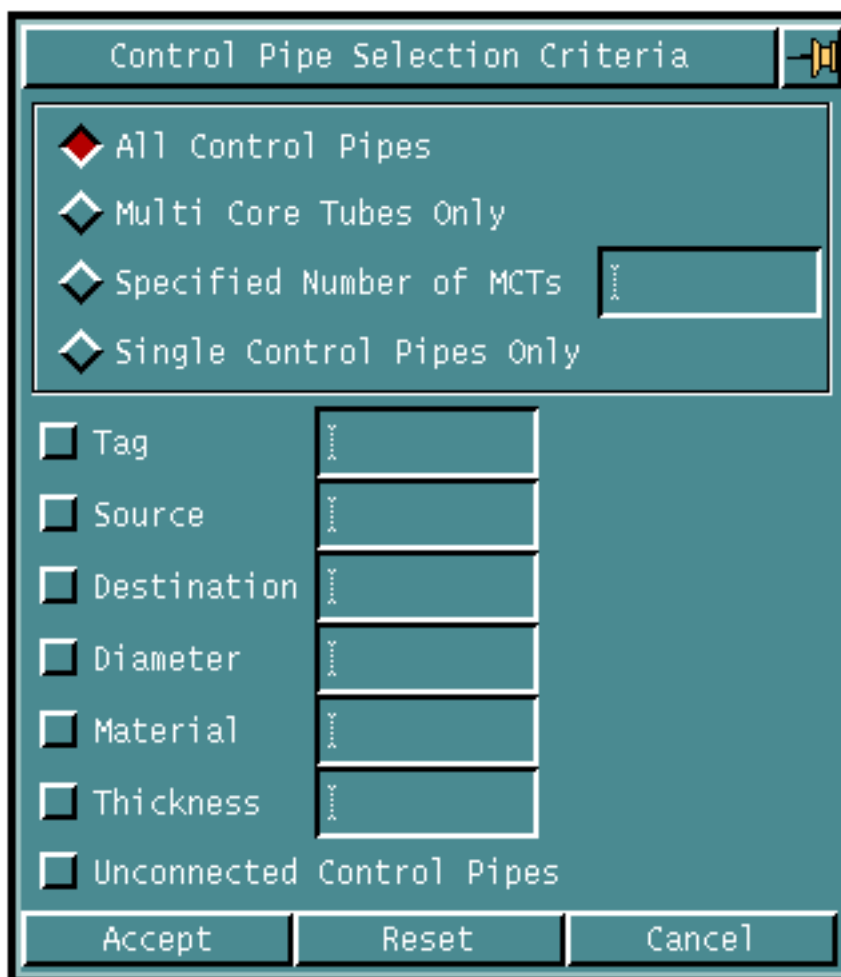
2. Choose the Specify Label toggle and the editor button.

The Passageway Labels run-time list appears.



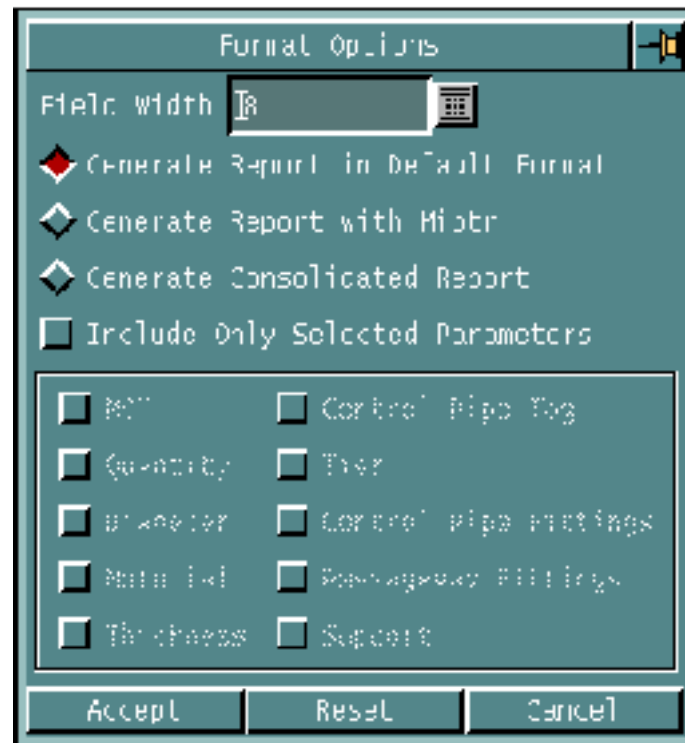
3. Choose the Control Pipe Selection Criteria toggle and the Option push button from the Control Pipe Report menu.

The Control Pipe Selection Criteria menu appears.



4. Choose the Specify Format toggle and the Option pushbutton.

The Control Pipe Reporting Format menu appears.



5. Choose the Include only selected Parameters toggle to selectively specify the report parameters. When this option is selected, the following parameter checkboxes become active and are available for selection.
 - MCT
 - Quantity
 - Diameter
 - Destination
 - Material
 - Thickness
 - Control pipe Tag
 - Tier
 - Control Pipe Fittings
 - Passageway fittings
 - Support
6. When you choose any of the parameters listed above a field is automatically created for the control pipe report and a report with the specified parameters is created.

7. On the Control Pipe Report property sheet, choose the Apply button.

Generating Control Pipe Segment Reports



Use this menu option to directly create reports on control pipes routed in the digitized passage way segment only.

1. Choose the Generate Control Pipe Segment Reports direct action option.
The system asks you to select a segment.
2. Select the desired segment.
A report of all the control pipes in the selected passageway segments is displayed.

Generating Control Pipe Reports



Use this menu option to directly generate reports on all control pipes in the selected passageways.

1. Choose the Generate Control Pipe Reports direct action option.
The system asks you to select a passageway.
2. Select the desired passageway.
A report of all the control pipes in the selected passageway is displayed.

Generating Control Pipe Default Parameter Listing



Use this menu option to list the currently selected default values of various control pipe parameters.

1. Choose the Generate Control Pipe Default Parameter Listing direct action option.
A listing of current values of all the control pipe parameters is displayed.

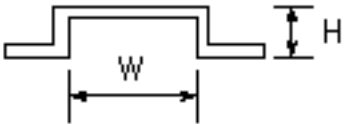
Production Drawing Form Part

The production drawing form part is fitting specific and is made up generally of the graphics and the data table section.

- Creating Production Drawing Form Parts

Creating Production Drawing Form Parts

Given below is a sample Production Drawing Form Part.

PRODUCTION DWG. FOR XXX						
Graphics section						
						
Data table section						
Mark	W	H			Qty	

The Graphics section details the fitting graphics and displays the various fitting attributes.

The Data table section lists the values for the fitting attributes shown in the graphics section.

Procedure to Create Production Drawing Form Parts

You can create Production drawing form parts for various control pipe fittings using the following procedure:

1. Activate a new part and create a new drawing.
2. Create the desired form boundary using draw mode entities.

3. Create the fitting graphics using draw mode entities. Use the same fitting attributes shown in the sample form part. However, the attribute names can be changed to suit your requirements. The sample form parts for various control pipe fittings are available in CADDs under directory CPIPE/FORM and are also listed in Appendix B.
4. Before creating a data table the following rules should be noted:
 - A form part can have only one data table. The data table can be located anywhere on the form part drawing.
 - The data table of a form part for a control pipe fitting should have the same number of attribute columns as that in the sample form part for the fitting. However, the attribute column names can be changed to suit your requirements.
 - The width of a fitting attribute column in a data table should be selected based upon the expected range of values for the attribute.
 - The number of rows in a data table is limited only by the drawing extents.
5. Create the data table using draw mode entities.
6. To make the data table more comprehensive, follow the steps given below:
 - a. Place tnodes in each fitting attribute field of every row. It is important that all the tnodes in a row are inserted in sequence. Use the command INSERT TNODE SEQUENCE and start inserting the tnodes in a row.
 - b. A tnode can be placed to the extreme left, center or extreme right of fitting attribute field depending on how the nodal text is desired to be justified in the field.
 - c. The first tnode of every row is called the head tnode and should correspond with the fitting attribute field MARK of the row.
 - d. The head tnode together with other tnodes (members) of a row constitutes a group.
 - e. The head tnode of each group should have a property called TITLETNOD property. This property takes two integer values. The first value is the tnode group order number in the data table and the second value is count of member tnodes in the group (including the head tnode).
 - f. To insert a property on a tnode, use the command INSERT PROPERTY TITLETNOD <tnode group order number> <space><count of member tnodes> and specify the tnode by clicking on it.
7. If you want a fitting attribute column to be positioned differently in the table, then you can transform the tnodes in all the rows of that column to the desired location.
8. You can create a vertical table layout by swapping the word "rows" with "columns" and vice versa and following steps (4) and (5) above.

9. Save the created form part drawing using command EXIT PART FILE NFIG DRAW <draw name>. The tnodes may optionally be blanked out before saving the form part.

Procedure for Penetration and Support Fittings

The procedure for the penetration and support fittings is as follows:

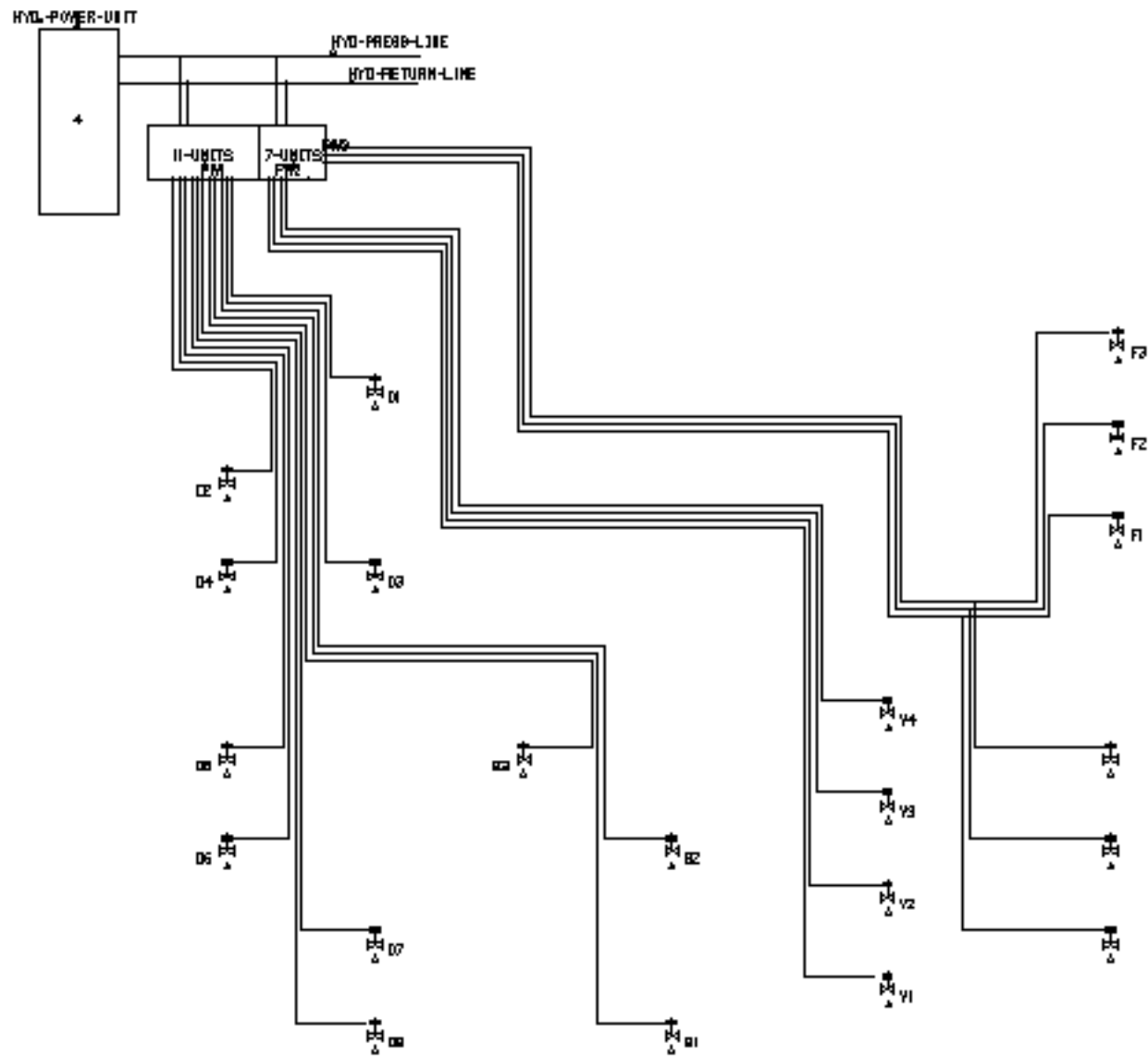
1. Activate a new part and create a new drawing.
2. Create the desired form boundary using draw mode entities.
3. Define a view inside the form boundary. The penetration fitting graphics will be generated by the command DRAW CPIPE inside this view. A form part drawing can have only one view. The view location and extents are limited only by the extents of the form part drawing.
4. You can create any other graphics as required on the form part using the draw mode entities. These graphics should be located outside the view extents.
5. A data table for the general attributes of the penetration/support has to be created following the steps outlined above in “Procedure to Create Production Drawing Form Parts” on page A-2 . The sample form parts for various control pipe fittings are available in CADDs under directory CPIPE/FORM and are also listed in Appendix B.
6. Save the created form part drawing using command EXIT PART FILE NFIG DRAW <draw name>. The tnodes may optionally be blanked out before saving the form part.

Sample Form Parts Available in CADDs

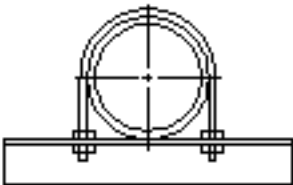
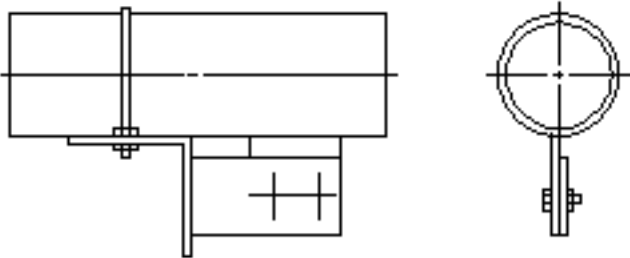
This chapter gives the samples of form parts for various control pipe fittings available in CADDs.

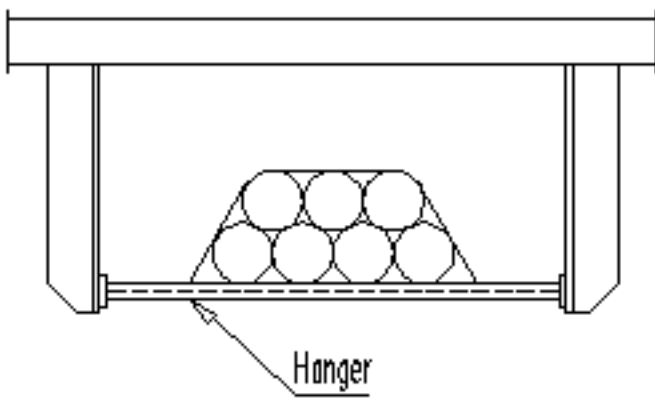
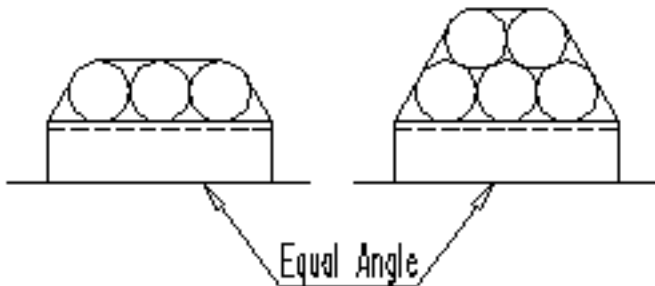
- Control Pipe Schematic Drawing
- Control Pipe Passageway Section Types
- Form Part for Control Pipe Protection Cover
- Form Part for Control Pipe Penetration Piece
- Form Part for Control Pipe Strap and Base Plate

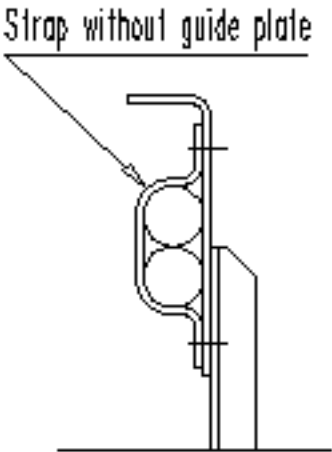
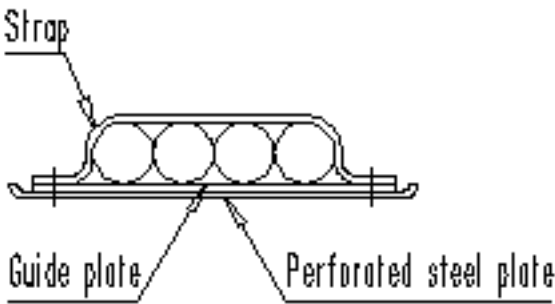
Control Pipe Schematic Drawing

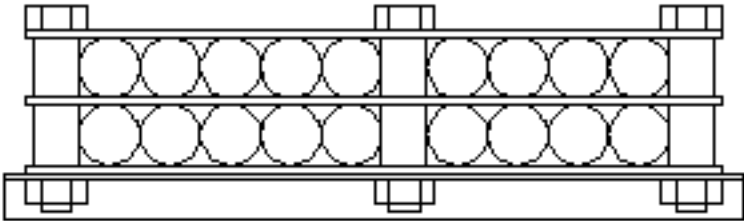
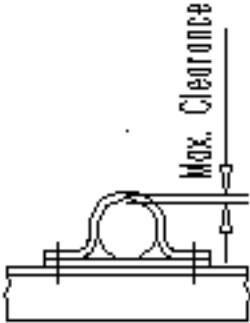


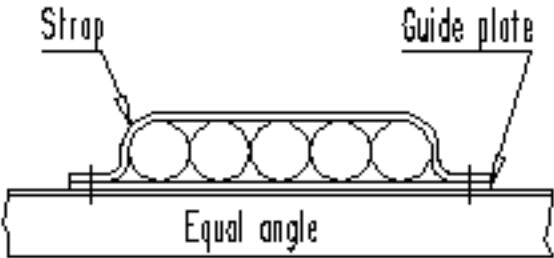
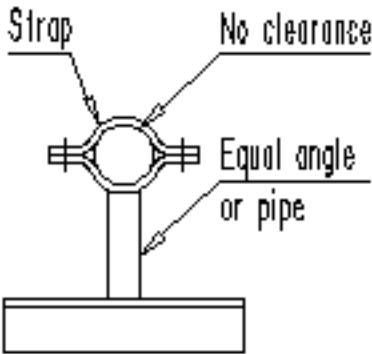
Control Pipe Passageway Section Types

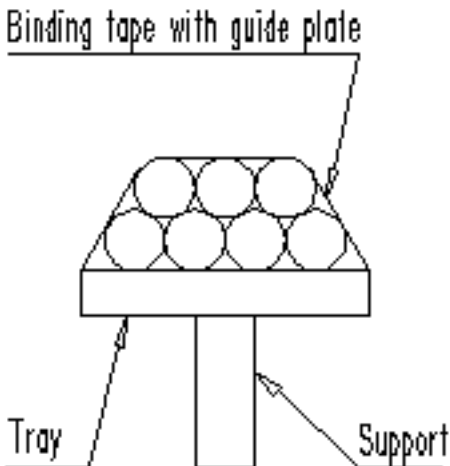
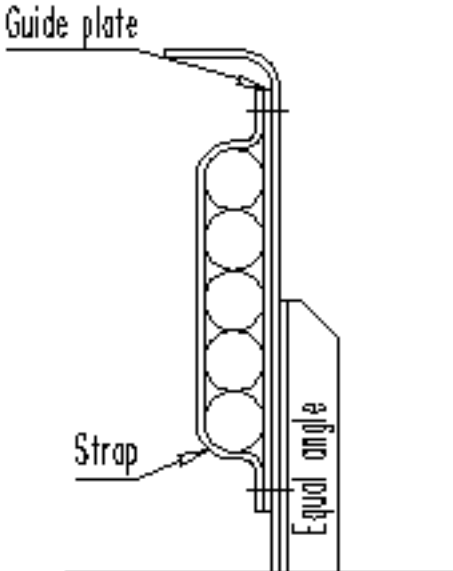
	SECTION TYPE	
A	U-BOLT 	
B	FIXED BAND 	

	SECTION TYPE	
C	BINDING TAPE 	
D	BINDING TAPE 	

	SECTION TYPE	
E		
F		

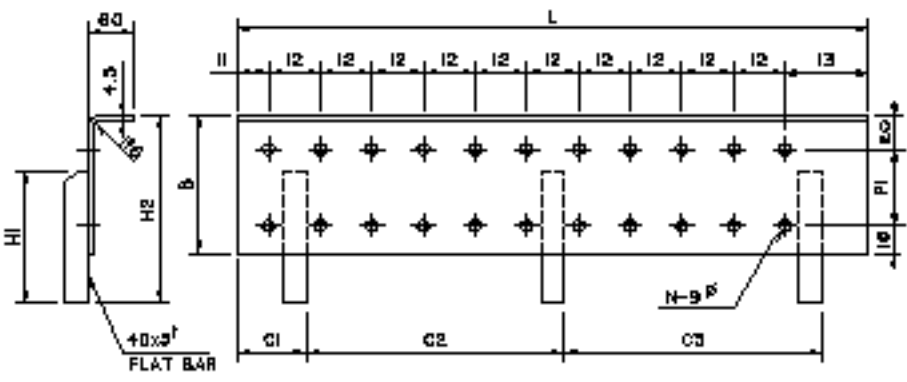
	SECTION TYPE	
G	MULTI-TIER STRAP 	
H	SINGLE DIAMETER STRAP WITH CLEARANCE 	

	SECTION TYPE	
I		
J		

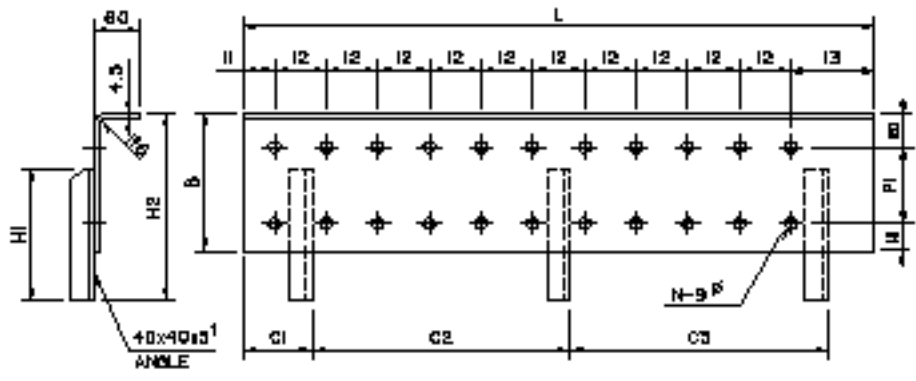
	SECTION TYPE	
K		
L		

Form Part for Control Pipe Protection Cover

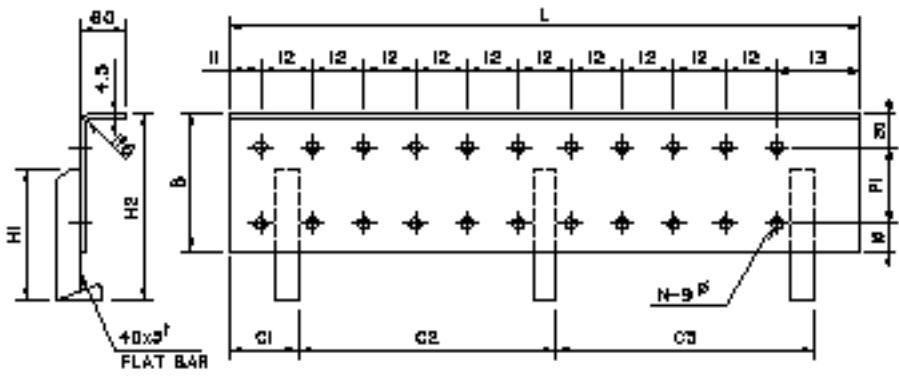
CPIPE/FORM/COVER-A

CVSQ	TRAY FOR PROTECTION COVER										SHEET NO. :			
											DWT NO. :			
														
MARK-NO	L	II	I2	I3	C1	C2	C3	PI	B	H1	H2	N	WT	Q'TY
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NOTE														
1 MATERIAL : _____														
2 GRINDING : _____														
3 PRINTING SYMBOL MARK : _____														
4 _____														

CPIPE/FORM/COVER-B

CVSQ	TRAY FOR PROTECTION COVER												BOP NO. :	
													DWC NO. :	
														
MARK-NO	L	II	I2	I3	C1	C2	C3	PI	B	H1	H2	N	WT	Q'TY
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1 MATERIAL :														
2 GRINDING :														
3 PRINTING SYMBOL MARK :														
4														

CPIPE/FORM/COVER-C

CVSQ	TRAY FOR PROTECTION COVER										SDIP NO. :			
											JMC NO. :			
														
MARK -NO	L	I1	I2	I3	C1	C2	C3	P1	B	H1	H2	N	WT	Q'TY
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1 MATERIAL : _____														
2 GRINDING : _____														
3 PRINTING SYMBOL MARK : _____														
4 _____														

CPIPE/FORM/COVER-D

CVSQ

TRAY FOR PROTECTION COVER

BGP NO. :
 DWG NO. :

MARK-NO	L	I1	I2	I3	C1	C2	C3	P1	B	H1	H2	N	WT	Q'TY
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NOTE

1 MATERIAL : _____

2 GRINDING : _____

3 PRINTING SYMBOL MARK : _____

4 _____

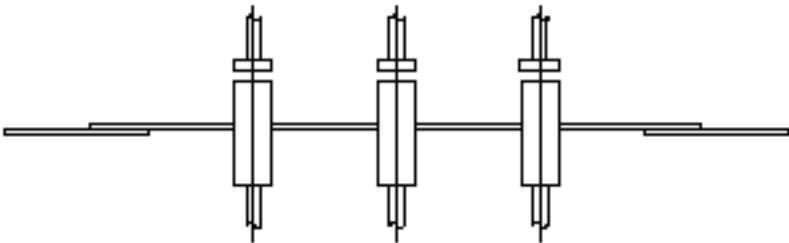
Form Part for Control Pipe Penetration Piece

CPIPE/FORM/PENETRATION

CVSQ	PENETRATION PIECE FOR CONTROL PIPES	SHIP NO. :
		DWG. NO. :

MARK NO	THICKNESS	MATERIAL	WEIGHT	QTY	REMARKS
△	△	△	△	△	

(BITE TYPE PENETRATION PIECE)



Form Part for Control Pipe Strap and Base Plate

CPIPE/FORM/STRAP1-1X1

CVSQ	STRAP & BASE PLATE					SHIP NO. #				
						DWG NO. #				

MATERIAL :

MARK-NO	N	d1 Ø	t	H	W	P	L	H Ø	Q' TY	REMARKS
△	△	△	△	△	△	△	△		△	
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SMOOTH GRINDING

CPIPE/FORM/STRAP1-1X2

CVSQ	STRAP & BASE PLATE										SHOP NO. :			
											JWC NO. :			
MATERIAL :														
MARK-NO	N1	N2	d1 Ø	d2 Ø	t	H1	H2	W1	W2	P1	P2	L	h Ø	Q'TY
△	△	△	△	△	△	△	△	△	△	△	△	△		△
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List of Form Parts

This chapter gives a list of form parts used by DRAW CPIPE to generate production drawings for various control pipe fittings and supports. All the form parts shown in this appendix are provided to you with the software. They can be used as templates to create your own form parts. A form part is created by using basic CADD commands before it can be used by DRAW CPIPE. Appendix A, “Production Drawing Form Part” gives step by step instructions on how to create those form parts.

- List of the Available Form Parts
- Form Part for Control Pipe Support
- Control Pipe Default Fitting Stockno File
- Control Pipe Default Directories File
- Control Pipe Default Fitting Auto-selection File
- Control Pipe Default Parameters File for Fittings
- Control Pipe Default Auto-selection file for Cover Fittings
- Control Pipe Default Auto-selection File for Penetration Fittings
- Control Pipe Default Auto-selection File for Section Types
- Control Pipe Default Support Auto-selection File
- Control Pipe Default Auto-selection File
- Oracle Table Format for Control Pipe Passageway Fittings
- Oracle Table Format Sample

List of the Available Form Parts

CPIPE/FORM/STRAP1-1X2

CVSQ	STRAP & BASE PLATE										SOP NO. :			
											IWC NO. :			
MATERIAL :														
MARK-NO	N1	N2	d1 Ø	d2 Ø	t	H1	H2	W1	W2	P1	P2	L	h Ø	Q'TY
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C-3

CPIPE/FORM/STRAP4-1X1

CVSQ	PIPE STRAP	SHOP NO : DWG NO :
-------------	-------------------	-----------------------

Pipe	t
BA B Inlet	1.6
BA - BOA	2.0

MIN DIMS				
MATL	D ϕ	A	B	H
CUPPER		12	8.8	
STEEL		12.8	8.8	

6 ϕ - HOLES

NOTE

1. RING HEX-BOLT/NUT STRAP SET

2. SMOOTH GRINDING

3.

NO	DESCRIPTION	MATERIAL
1	STRAP	
2	RING	
3	HEX-B/NUT	

CPIPE/FORM/STRAP4-2X2

[illegible]

[illegible]

CPIPE/FORM/STRAP4-1X4

CVSQ

PIPE STRAP

BOP NO :
 JWC NO :

Pipe	1
DA Dia below	L4
DA - DIA	L4

RING DIMENS				
WTL	DØ	A	B	H
COPPER		12	8.8	
STAINLESS		12.8	9.8	

MARK NO	DØ	N1	N2	N3	N4	t	P1	P2	P3	P4	L	B/NUT M x L	Q'TY	REMARKS
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
2	2	2	2	2	2	2	2	2	2	2	2	2	2	
3	3	3	3	3	3	3	3	3	3	3	3	3	3	
4	4	4	4	4	4	4	4	4	4	4	4	4	4	
5	5	5	5	5	5	5	5	5	5	5	5	5	5	
6	6	6	6	6	6	6	6	6	6	6	6	6	6	
7	7	7	7	7	7	7	7	7	7	7	7	7	7	
8	8	8	8	8	8	8	8	8	8	8	8	8	8	
9	9	9	9	9	9	9	9	9	9	9	9	9	9	
10	10	10	10	10	10	10	10	10	10	10	10	10	10	
11	11	11	11	11	11	11	11	11	11	11	11	11	11	
12	12	12	12	12	12	12	12	12	12	12	12	12	12	
13	13	13	13	13	13	13	13	13	13	13	13	13	13	
14	14	14	14	14	14	14	14	14	14	14	14	14	14	
15	15	15	15	15	15	15	15	15	15	15	15	15	15	
16	16	16	16	16	16	16	16	16	16	16	16	16	16	
17	17	17	17	17	17	17	17	17	17	17	17	17	17	
18	18	18	18	18	18	18	18	18	18	18	18	18	18	
19	19	19	19	19	19	19	19	19	19	19	19	19	19	
20	20	20	20	20	20	20	20	20	20	20	20	20	20	

NOTE

- RING HEX-BOLT/NUT STRAP SET
- SMOOTH GRINDING
-

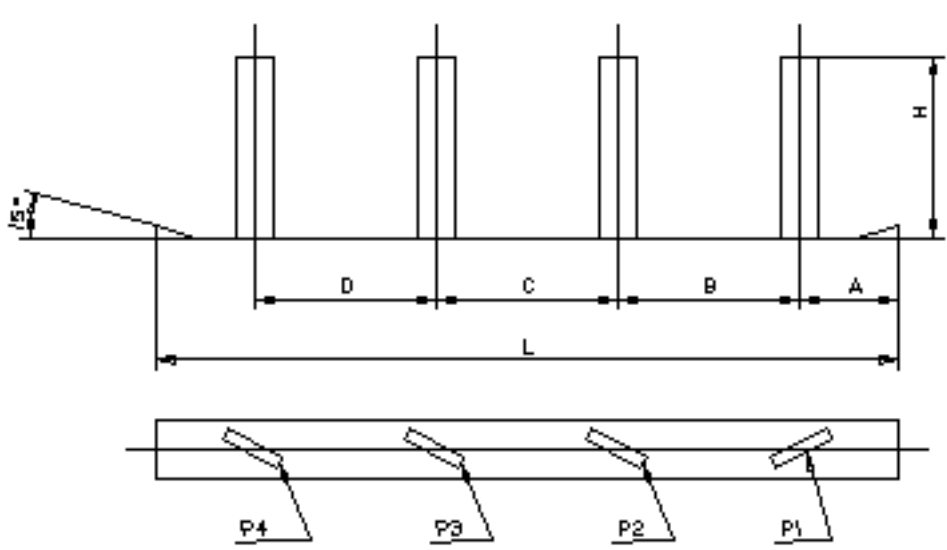
NO	DESCRIPTION	INTERNAL
1	STRAP	
2	RING	
3	HEX-B/NUT	

Form Part for Control Pipe Support

CPIPE/FORM/SUPPORT

CVSQ	SUPPORT FOR CONTROL PIPES	SHIP NO. :									
		DWO NO. :									
<table border="1"><thead><tr><th>MARK NO</th><th>MATERIAL</th><th>QTY</th><th>REMARKS</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td><td></td></tr></tbody></table>				MARK NO	MATERIAL	QTY	REMARKS				
MARK NO	MATERIAL	QTY	REMARKS								

CPIPE/FORM/FBSUPPORT

FLAT BAR SUPPORT								SHIP NO					
								DWG NO					
													
BLOCK NAME	ITEM NO	TRAY	L	SUPPORT LOCATION				SUPPORT LENGTH(H)				Q'TY	REMARKS
				A	B	C	D	P1(H)	P2	P3	P4		
Δ	Δ		Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Δ	Δ		Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Δ	Δ		Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Δ	Δ		Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Δ	Δ		Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Δ	Δ		Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Δ	Δ		Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Δ	Δ		Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Δ	Δ		Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Δ	Δ		Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Δ	Δ		Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Δ	Δ		Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ

Control Pipe Default Fitting Stockno File

CPIPE.DATA.STFILE.FITTING

```

UNITS=MM
STK#  SCLX  SCLY  SCLZ  NAME                &
* 09-May-96 dongxf; Created
*
-----
-
*
* FILENAME      :    CPIPE.DATA.STFILE*
* PURPOSE       :    Stockno file for fitting
*
* KEY WORD      :    UNITS - Specifies the units used in this file.
It must
*                                be the first line of this file.
*                                STK# - Stock Number of the fitting
*                                SCLX - Scale x of the fitting
*                                SCLY - Scale y of the fitting
*                                SCLZ - Scale z of the fitting
*                                NAME - Name of the fitting nfigure
*
-----
-
*
STK#  SCLX  SCLY  SCLZ      NAME                &
BRAN  10    5              CPIPE.S.STEE
CONI  10    5              CPIPE.S.CONI
CONK  10    5              CPIPE.S.CONK

```

Control Pipe Default Directories File

CPIPE.DATA.DRFILE

INFODIR&

*

* 02-Apr-96 dongxf; Created

*

*

* FILENAME : CPIPE.DATA.DRFILE

*

* PURPOSE : Directories files for CONTROL PIPE

*

*

*

COVER CPIPE.DATA.ASFILE.COVER

CPIPE CPIPE.DATA.ASFILE.CPIPE

FITTING CPIPE.DATA.ASFILE.FITTING

PENETRATION CPIPE.DATA.ASFILE.PENETRATION

SECTION CPIPE.DATA.ASFILE.SECTION

SUPPORT CPIPE.DATA.ASFILE.SUPPORT

Control Pipe Default Fitting Auto-selection File

CPIPE.DATA.ASFILE.FITTING

UNITS=MM

TYPE	SPEC	SIZE	NSIZ	BSIZ	ENDT	SCLX	SCLY	SCLZ	IFC#NAME
STK#									

*

* 20-Jun-96 mkeerthi; Added more data from client supplied standards

* 02-Apr-96 dongxf; Created

*

*

* FILENAME : CPIPE.DATA.ASFILE.FITTING

*

* PURPOSE : Autoselection file for fitting

*

* KEY WORD : UNITS - Specifies the units used in this file.
It must

*

be the first line of this file.

*

TYPE - Type of the fitting

*

SIZE - Nominal size of the control pipe

*

NSIZ - New size of the fitting

*

BSIZ - Branch size of the fitting

*

SCLX - Scale x of the fitting

*

SCLY - Scale y of the fitting

*

SCLZ - Scale z of the fitting

*

IFC# - Insert fitting code

*

NAME - Name of the fitting nfigure

*

STK# - Stock Number of the fitting

*

*

* TYPE Description :

*

BRNS - Branch Socket Weld end type

*

BRNB - Branch bite end type

*

BRNR - Branch ring end type

*

BRGS - Branch gradual reducing Socket Weld end type

*

* ENDT Description :

*

BT - Bite type

*

SB - Socket Bracing type

*

SR - Silver Ring type

*

BRGS	COPPER10	6	13	17	T
------	----------	---	----	----	---

CPIPE.F.RTEERGTE10X6-SB-COPPER

BRGS	COPPER15	10	15	15	T
------	----------	----	----	----	---

CPIPE.F.RTEERGTE15X10-SB-COPPER

BRGS COPPER15	6	15	20	T	CPIPE.F.RTEE
RGTE15X6-SB-COPPER					
BRNB COPPER10		21.5	21.5	T	CPIPE.F.STEE
STEE10-BT-COPPER					
BRNB COPPER15		25	25	T	CPIPE.F.STEE
STEE15-BT-COPPER					
BRNB COPPER4		13	13	T	CPIPE.F.STEE
STEE4-BT-COPPER					
BRNB COPPER5		15	15T	T	CPIPE.F.STEE
STEE5-BT-COPPER					
BRNB COPPER6		16	16	T	CPIPE.F.STEE
STEE6-BT-COPPER					
BRNB COPPER8		17	17	T	CPIPE.F.STEE
STEE8-BT-COPPER					
BRNB STEEL 10		25	25	T	CPIPE.F.STEE
STEE10-BT-STEEL					
BRNB STEEL 15		26	26	T	CPIPE.F.STEE
STEE15-BT-STEEL					
BRNB STEEL 6		16	16	T	CPIPE.F.STEE
STEE6-BT-STEEL					
BRNB STEEL 8		20.5	20.5	T	CPIPE.F.STEE
STEE8-BT-STEEL					
BRNR CUNI 15		16	18	T	CPIPE.F.STEE
STEE15-SR-CUNI					
BRNS COPPER10		13	13	T	CPIPE.F.STEE
STEE10-SB-COPPER					
BRNS COPPER10	6	12	14	T	CPIPE.F.RTEE
RTEE10X6-SB-COPPER					
BRNS COPPER15		15	15	T	CPIPE.F.STEE
STEE15-SB-COPPER					
BRNS COPPER15	10	13	16	T	CPIPE.F.RTEE
RTEE15X10-SB-COPPER					
BRNS COPPER15	6	11	16	T	CPIPE.F.RTEE
RTEE15X6-SB-COPPER					
BRNS COPPER6		10	10	T	CPIPE.F.STEE
STEE6-SB-COPPER					
BRNS STEEL 10		13.5	13.5	T	CPIPE.F.STEE
STEE10-SB-STEEL					
BRNS STEEL 16		15.9	15.9	T	CPIPE.F.STEE
STEE16-SB-STEEL					
CONI ALBS 10		100	38		CPIPE.F.CONI
CONN10-I-ALBS					
CONI ALBS 15		100	44		CPIPE.F.CONI
CONN15-I-ALBS					
CONI ALBS 6		100	34		CPIPE.F.CONI
CONN6-I-ALBS					
CONI ALBS 8		100	36		CPIPE.F.CONI
CONN8-I-ALBS					
CONI COPPER10		100	38		CPIPE.F.CONI
CONN10-I-COPPER					
CONI COPPER15		100	44		CPIPE.F.CONI
CONN15-I-COPPER					
CONI COPPER6		100	34		CPIPE.F.CONI
CONN6-I-COPPER					

CONI COPPER8	100	36
CPIPE.F.CONN8-I-COPPER		
CONK ALBS 10	100	25
CPIPE.F.CONN10-K-ALBS		
CONK ALBS 15	100	32
CPIPE.F.CONN15-K-ALBS		
CONK ALBS 4	100	16
CPIPE.F.CONN4-K-ALBS		
CONK ALBS 5	100	16
CPIPE.F.CONN5-K-ALBS		
CONK ALBS 6	100	22
CPIPE.F.CONN6-K-ALBS		
CONK ALBS 8	100	22
CPIPE.F.CONN8-K-ALBS		
CONK COPPER10	100	25
CPIPE.F.CONN10-K-COPPER		
CONK COPPER15	100	32
CPIPE.F.CONN15-K-COPPER		
CONK COPPER4	100	16
CPIPE.F.CONN4-K-COPPER		
CONK COPPER5	100	16
CPIPE.F.CONN5-K-COPPER		
CONK COPPER6	100	22
CPIPE.F.CONN6-K-COPPER		
CONK COPPER8	100	22
CPIPE.F.CONN8-K-COPPER		
CONK STEEL 10	100	25
CPIPE.F.CONN10-K-STEEL		
CONK STEEL 15	100	32
CPIPE.F.CONN15-K-STEEL		
CONK STEEL 6	100	22
CPIPE.F.CONN6-K-STEEL		
CONK STEEL 8	100	26
CPIPE.F.CONN8-K-STEEL		
CONK SUS 10	100	25
CPIPE.F.CONN10-K-SUS		
CONK SUS 15	100	32
CPIPE.F.CONN15-K-SUS		
CONK SUS 6	100	22
CPIPE.F.CONN6-K-SUS		
CONK SUS 8	100	22
CPIPE.F.CONN8-K-SUS		

Control Pipe Default Parameters File for Fittings

CPIPE.DATA.PAFILE.PARAMETERS

UNITS=MM

STK# PARM & &

*

* 18-Jun-96 mkeerthi; Created

*

*

* FILENAME : CPIPE.DATA.PAFILE.PARAMETERS

*

* PURPOSE : Parameter file for detailing and clearance checking

*

* KEY WORD :

*

STK# - Stock Number of the fitting

*

PARM - Parameter for detailing and clearance

checking

*

*

* ENDT Description :

*

BT - Bite type

*

SB - Socket Bracing type

*

SR - Silver Ring type

*

*

CONN10-I-ALBS100, 38

CONN10-I-COPPER100, 38

CONN10-K-ALBS100, 25

CONN10-K-COPPER100, 25

CONN10-K-STEEL100, 28

CONN10-K-SUS100, 28

CONN15-I-ALBS100, 44

CONN15-I-COPPER100, 44

CONN15-K-ALBS100, 32

CONN15-K-COPPER100, 32

CONN15-K-STEEL100, 32

CONN15-K-SUS100, 32

CONN4-K-ALBS100, 16

CONN4-K-COPPER100, 16

CONN5-K-ALBS100, 16

CONN5-K-COPPER100, 16

CONN6-I-ALBS100, 34

CONN6-I-COPPER100, 34

CONN6-K-ALBS100, 22

CONN6-K-COPPER100, 22

CONN6-K-STEEL100, 22

CONN6-K-SUS 100, 22
CONN8-I-ALBS100, 36
CONN8-I-COPPER100, 36
CONN8-K-ALBS100, 22
CONN8-K-COPPER100, 22
CONN8-K-STEEL100, 25
CONN8-K-SUS 100, 26
RGTE10X6-SB-COPPER25, 27, 17.9, 12.9
RGTE15X10-SB-COPPER29, 27, 23.3, 17.9
RGTE15X6-SB-COPPER29, 30, 23.3, 12.9
RTEE10X6-SB-COPPER24, 24, 17.9, 12.9
RTEE15X10-SB-COPPER27, 28, 23.3, 18.3
RTEE15X6-SB-COPPER25, 26, 23.3, 13.3
STEE10-BT-COPPER41.5, 41.5, 26
STEE10-BT-STEEL45.5, 45.5, 32
STEE10-SB-COPPER25, 25, 17.9
STEE10-SR-STEEL26.5, 26.5, 27
STEE15-BT-COPPER45.5, 45.5, 35
STEE15-BT-STEEL47.5, 47.5, 35
STEE15-SB-COPPER29, 29, 23.2
STEE15-SR-CUNI28, 28, 23.2
STEE16-SR-STEEL28.9, 28.9, 33
STEE4-BT-COPPER29.5, 29.5, 14
STEE5-BT-COPPER33, 33, 17
STEE6-BT-COPPER35.5, 35.5, 19
STEE6-BT-STEEL34.5, 34.5, 19
STEE6-SB-COPPER20, 20, 12.5
STEE8-BT-COPPER36.5, 36.5, 21
STEE8-BT-STEEL40, 40, 26

Control Pipe Default Auto-selection file for Cover Fittings

CPIPE.DATA.ASFILE.COVER

```

UNITS=MM
TYPE  LENG  LEGL  CWDT  THIK  EDG1  EDG2  WELD  SUPP  WGHMATLDENS
JUST  NAME  FORM
*
* 02-Apr-96 dongxf; Created
*
-----
*
*
* FILENAME      :    CPIPE.DATA.ASFILE.COVER
*
* PURPOSE       :    Autoselection file for cover
*
* KEY WORD      :    UNITS - Specifies the units used in this file.
It must be the first line of
*
*                  this file.
*
*                  DESC   - Description of the cover
*                  LENG   - Length of the cover along control pipe
passageway
*
*                  LEGL   - Cover support leg length
*                  CWDT   - Width of the cover head
*                  EDG1   - Distance between the bottom edge and the
bottom bolt hole of the cover
*                  EDG2   - Distance between the top edge and the top
bolt hole of the cover
*                  WELD   - Rate(%) between welding length and cover
width when welding support
*
*                  with the cover
*                  SUPP   - Support material specification
*                  WGH    - Support material unit length weight
*                  MATL   - Material of the cover
*                  DENS   - Density of the cover material. Its units
is per cubic asfile-units.
*                  NAME   - Name of the cover nfigure
*                  FORM   - Name of the cover drawing form part
*
-----
*
*
A      2400  50    60    4.5  15    20    .67    40X5  1.5SS41
.0000078LJT CPIPE.F.COVER-LCPIPE.FORM.COVER-A
A      2400  50    60    4.5  15    20    .67    40X5  1.5SS41
.0000078RJTCPIPE.F.COVER-RCPIPE.FORM.COVER-A
A      500   50    60    4.5  15    20    .67    40X5  1.5SS41
.0000078LJT CPIPE.F.COVER-LCPIPE.FORM.COVER-A
B      2400  50    60    4.5  15    20    .67    40X40X52.97SS41
.0000078LJT CPIPE.F.COVER-LCPIPE.FORM.COVER-B

```

List of Form Parts

Control Pipe Default Auto-selection file for Cover Fittings

B	2400	50	60	4.5	15	20	.67	40X40X52.97SS41
.0000078RJT CPIPE.F.COVER-RCPIPE.FORM.COVER-B								
C	2400	50	60	4.5	15	20	.67	40X5 1.5SS41
.0000078LJT CPIPE.F.COVER-LCPIPE.FORM.COVER-C								
D	2400	50	60	4.5	15	20	.67	40X40X52.97SS41
.0000078LJT CPIPE.F.COVER-LCPIPE.FORM.COVER-D								
D	500	50	60	4.5	15	20	.67	40X40X52.97SS41
.0000078LJT CPIPE.F.COVER-LCPIPE.FORM.COVER-D								

Control Pipe Default Auto-selection File for Penetration Fittings

CPIPE.DATA.ASFILE.PENETRATION

UNITS=MM

TYPE	MATL	CTYP	WDTH	HGHT	THIK	FRAD	DENS	NAME	FORM
------	------	------	------	------	------	------	------	------	------

&

*

* 02-Apr-96 dongxf; created

*

- -

*

* FILENAME: CPIPE.DATA.ASFILE.PENETRATION

*

* PURPOSE: Autoselection file for penetration

*

* KEY WORD: UNITS - Specifies the units used in this file. It must be the first

*

line of this file.

*

TYPE - Name of the penetration

*

MATL - Material of the penetration

*

CTYP - Connection type of the penetration

*

WDTH - Width of the penetration

*

HGHT - Height of the penetration

*

THIK - Thickness of the penetration

*

FRAD - Fillet radius of the penetration

*

DENS - Density of the penetration material

*

NAME - name of the penetration figure

*

FORM - name of the form part for the penetration

*

*

RPEN	COPPERBU	1300	1200	20	150	0.0000084	CPIPE.F.RPEN
------	----------	------	------	----	-----	-----------	--------------

CPIPE.FORM.PENETRATION

RPEN	STEEL BU	1300	1200	20	150	0.0000078	CPIPE.F.RPEN
------	----------	------	------	----	-----	-----------	--------------

CPIPE.FORM.PENETRATION

RPEN	COPPERBU	600	600	20	150	0.0000084	CPIPE.F.RPEN
------	----------	-----	-----	----	-----	-----------	--------------

CPIPE.FORM.PENETRATION

ZPEN	COPPERBU	1300	1200	20	150	0.0000084	CPIPE.F.ZPEN
------	----------	------	------	----	-----	-----------	--------------

CPIPE.FORM.PENETRATION

RPEN	COPPERBU	300	300	20	150	0.0000084	CPIPE.F.RPEN
------	----------	-----	-----	----	-----	-----------	--------------

CPIPE.FORM.PENETRATION

ZPEN	STEEL BU	1300	1200	20	150	0.0000078	CPIPE.F.ZPEN
------	----------	------	------	----	-----	-----------	--------------

CPIPE.FORM.PENETRATION

ZPEN	COPPERBU	600	600	20	150	0.0000084	CPIPE.F.ZPEN
------	----------	-----	-----	----	-----	-----------	--------------

CPIPE.FORM.PENETRATION

Control Pipe Default Auto-selection File for Section Types

CPIPE.DATA.ASFILE.SECTION

```

UNITS=MM
TYPE  ODIA  MATP  TIER  GROU  WDT  THIK  EDG1  EDG2  GWDTMATS
BOLT  NAME              FORM
&
*
* 02-Apr-96 dongxf; created
*
-----
-
*
* FILENAME: CPIPE.DATA.ASFILE.SECTION
*
* PURPOSE:  Autoselection file for section
*
* KEY WORD: UNITS - Specifies the units used in this file. It must
be the first line of
*
*               this file.
*
*               TYPE - Description of the section( section name )
*
*               ODIA - control pipe outer diameter in this section. If
more than one diameter
*
*               GROU - group exist in this section, the biggest outer
diameter should be used.
*
*               MATP - material of the control pipes in this section
*
*               TIER - number of tier in this section
*
*               GROU - number of group control pipe in one tier
*
*               EDG1 - distance between bolt hole center to the strap
edge
*
*               EDG2 - distance between bolt hole center to the
outside of control pipe
*
*               GWDT - group maximum width
*
*               WDT  - width of the strap
*
*               THIK - thickness of the strap
*
*               MATS - material of the strap
*
*               BOLT - bolts to be used with the strap
*
*               NAME - name of the strap nfigure
*
*               FORM - name of the form part for this strap
*
-----
-----
*
A      10      STEEL 1      1      STEELM8X10
CPIPE.F.UBOLT
A      15      ALBS  1      1      STEELM8X10
CPIPE.F.UBOLT
B      10      STEEL 1      1      STEELM16X30
CPIPE.F.FBAND

```

C	10	ALBS	1	1						100
CPIPE.F.TAPE										
C	15	ALBS	1	1						100
CPIPE.F.TAPE										
C	15	ALBS	2	1						100
CPIPE.F.TAPE										
D	20	CUNI	1	1						100
CPIPE.F.TAPE										
D	10	ALBS	2	1						100
CPIPE.F.TAPE										
D	20	CUNI	2	1						100
CPIPE.F.TAPE										
E	10	ALBS	1	1	25	2	10	12		125STEEL
M8X10 CPIPE.F.STRAP2-1X1CPIPE.FORM.STRAP2-1X1										
F	15	ALBS	1	1	25	2	10	12		125STEEL
M8X10 CPIPE.F.STRAP1-1X1CPIPE.FORM.STRAP1-1X1										
G	15	ALBS	1	1	25	2	10	9		100STEEL
M8X10 CPIPE.F.STRAP4-1X1CPIPE.FORM.STRAP4-1X1										
G	15	ALBS	2	1	25	2	10	9		100STEEL
M8X10 CPIPE.F.STRAP4-2X1CPIPE.FORM.STRAP4-2X4										
G	15	ALBS	2	2	25	2	10	9		100STEEL
M8X10 CPIPE.F.STRAP4-2X2CPIPE.FORM.STRAP4-2X4										
G	15	STEEL	1	1	25	2	10	9		100STEEL
M8X10 CPIPE.F.STRAP4-1X1CPIPE.FORM.STRAP4-1X1										
G	15	SUS	2	1	25	2	10	9		100SUS304
M8X10 CPIPE.F.STRAP4-2X1CPIPE.FORM.STRAP4-2X1										
G	12	NON	2	2	25	2	10	9		100BRASS
M8X10 CPIPE.F.STRAP4-2X2CPIPE.FORM.STRAP4-2X2										
G	15	COPPER2	2	2	25	2	10	9		100BRASS
M8X10 CPIPE.F.STRAP4-2X2CPIPE.FORM.STRAP4-2X2										
H	15	ALBS	1	1	25	2	10	12		STEELM8X10
CPIPE.F.STRAP3CPIPE.FORM.STRAP3										
I	15	COPPER1	1	1	25	2	10	12		125STEEL
M8X10 CPIPE.F.STRAP1-1X1CPIPE.FORM.STRAP1-1X1										
I	20	COPPER1	1	1	25	2	10	12		125STEEL
M8X10 CPIPE.F.STRAP1-1X1CPIPE.FORM.STRAP1-1X1										
I	21	COPPER1	1	1	25	2	10	12		125STEEL
M8X10 CPIPE.F.STRAP1-1X1CPIPE.FORM.STRAP1-1X1										
I	10	CUNI	1	1	25	2	10	12		125STEEL
M8X10 CPIPE.F.STRAP1-1X1CPIPE.FORM.STRAP1-1X1										
I	11	CUNI	1	1	25	2	10	12		125STEEL
M8X10 CPIPE.F.STRAP1-1X1CPIPE.FORM.STRAP1-1X1										
I	12	CUNI	1	1	25	2	10	12		125STEEL
M8X10 CPIPE.F.STRAP1-1X1CPIPE.FORM.STRAP1-1X1										
I	13	CUNI	1	1	25	2	10	12		125STEEL
M8X10 CPIPE.F.STRAP1-1X1CPIPE.FORM.STRAP1-1X1										
I	15	CUNI	1	1	25	2	10	12		125STEEL
M8X10 CPIPE.F.STRAP1-1X1CPIPE.FORM.STRAP1-1X1										
I	20	CUNI	1	1	25	2	10	12		125STEEL
M8X10 CPIPE.F.STRAP1-1X1CPIPE.FORM.STRAP1-1X1										
I	24	CUNI	1	1	25	2	10	12		125STEEL
M8X10 CPIPE.F.STRAP1-1X1CPIPE.FORM.STRAP1-1X1										
I	28	CUNI	1	1	25	2	10	12		125STEEL
M8X10 CPIPE.F.STRAP1-1X1CPIPE.FORM.STRAP1-1X1										

List of Form Parts
Control Pipe Default Auto-selection File for Section Types

I	29	CUNI	1	1	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
I	33	CUNI	1	1	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
I	36	CUNI	1	1	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
I	41	CUNI	1	1	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
I	41	CUNI	1	2	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X2	CPIPE.FORM.STRAP1-1X2							
I	15	ALBS	1	1	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
I	15	ALBS	1	1	30	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
I	15	ALBS	1	1	30	4	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
I	20	ALBS	1	1	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
I	12	ALBS	1	1	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
I	41	ALBS	1	1	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
I	15	ALBS	1	2	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X2	CPIPE.FORM.STRAP1-1X2							
I	20	ALBS	1	2	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X2	CPIPE.FORM.STRAP1-1X2							
I	15	ALBS	1	3	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X3	CPIPE.FORM.STRAP1-1X3							
I	20	ALBS	1	3	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X3	CPIPE.FORM.STRAP1-1X3							
I	9	S304	1	1	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
I	10	S316	1	1	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
I	29	S316	1	1	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
I	28	S316L	1	1	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
I	36	S316L	1	1	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
I	41	S316L	1	1	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
J	41	CN	1	1	25	2	10	12	STEELM8X10
	CPIPE.F.STRAP5								
K	10	ALBS	1	1					100
	CPIPE.F.TAPE								
L	6	ALBS	1		25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
L	15	CUNI1	1		25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X1	CPIPE.FORM.STRAP1-1X1							
L	15	CUT	1	2	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X2	CPIPE.FORM.STRAP1-1X2							
L	15	STEEL	1	2	25	2	10	12	125STEEL
M8X10	CPIPE.F.STRAP1-1X2	CPIPE.FORM.STRAP1-1X2							

```

L      15      CUNI  1      3      25      2      10      12      125STEEL
M8X10 CPIPE.F.STRAP1-1X3CPIPE.FORM.STRAP1-1X3
Following section fittings are supported by this version.
FITTYPE   NFIGURE           DESCRIPTION
231    CPIPE.F.UBOLTU-bolt with double nuts
232    CPIPE.F.FBANDFixed band
233    CPIPE.F.TAPE1Binding tape with single tier
233    CPIPE.F.TAPE2Binding tape with double tier
235    CPIPE.F.STRAP1-1X1Strap with single group and single tier
235    CPIPE.F.STRAP1-1X2Strap with two groups and single tier
235    CPIPE.F.STRAP1-1X3Strap with three groups and single tier
235    CPIPE.F.STRAP2-1X1Strap without guide plate with single
group and single tier
235    CPIPE.F.STRAP2-1X2Strap without guide plate with two group
and single tier
235    CPIPE.F.STRAP2-1X3Strap without guide plate with three group
and single tier
235    CPIPE.F.STRAP3Strap with single group, single tier and
clearance gap
235    CPIPE.F.STRAP4-1x1Strap with single diameter, single group
and single tier
235    CPIPE.F.STRAP4-2x1Strap with single diameter, single group
and two tier
235    CPIPE.F.STRAP4-2x2Strap with single diameter, two group and
two tier
235    CPIPE.F.STRAP4-2x3Strap with single diameter, three group
and two tier
236    CPIPE.F.STRAP4-2X4Strap with single diameter, four group and
two tier
237    CPIPE.F.STRAP5Fixed band strap

```

Control Pipe Default Support Auto-selection File

CPIPE.DATA.ASFILE.SUPPORT

```

UNITS=MM
TYPE  WIDTH  HGTH  LENG  THIK  MATL  IFC#  NAME  FORM  STK#
&
*
* 02-Apr-96 dongxf; Created
* -----
*
* -----
*
* FILENAME: CPIPE.DATA.ASFILE.SUPPORT
*
* PURPOSE: Autoselection file for support
*
* KEY WORD: UNITS - Specifies the units used in this file. It must
*            be the first line of this file.
*            WIDTH - Scale y of the support
*            HGTH - Scale z of the support
*            LENG - Scale x of the support
*            IFC# - Insert fitting code
*            MATL - Material of the support
*            NAME - Name of the support nfigure
*            FORM - Form part name for drawing
*            STK# - Stock Number of the support
* -----
*
* -----
*
SUPA  805    210                STEEL  A      CPIPE.F.SUPA
CPIPE.FORM.SUPPORTSUPPORT-A
SUPS  200    200    50          STEEL        CPIPE.F.SUPSSUPPORT-S
FBSP  50     500   2000         STEEL        CPIPE.F.FBSPSUPPORT-FB
TR62  62     10    1800   1.6   SS41        CPIPE.F.TRAY
CPIPE.FORM.TRAYSUPPORT-TRAY
TR90  90     10    1800   1.6   SS41        CPIPE.F.TRAY
CPIPE.FORM.TRAYSUPPORT-TRAY
T118  118    10    1800   1.6   SS41        CPIPE.F.TRAY
CPIPE.FORM.TRAYSUPPORT-TRAY
T146  46     10    1800   1.6   SS41        CPIPE.F.TRAY
CPIPE.FORM.TRAYSUPPORT-TRAY
T174  174    10    1800   1.6   SS41        CPIPE.F.TRAY
CPIPE.FORM.TRAYSUPPORT-TRAY
T230  230    10    1800   1.6   SS41        CPIPE.F.TRAY
CPIPE.FORM.TRAYSUPPORT-TRAY
T258  258    10    1800   1.6   SS41        CPIPE.F.TRAY
CPIPE.FORM.TRAYSUPPORT-TRAY
T370  370    10    1800   1.6   SS41        CPIPE.F.TRAY
CPIPE.FORM.TRAYSUPPORT-TRAY

```

Control Pipe Default Auto-selection File

CPIPE.DATA.ASFILE.CPIPE

UNITS=MM

MATL DIAM THIK MCTQ ODIA SCHE WGHT STK# &

*

* 02-Apr-96 dongxf; created

*

*

* FILENAME : CPIPE.DATA.ASFILE.CPIPE

*

* PURPOSE : Autoselection file for control pipe

*

* KEY WORD : UNITS - Specifies the units used in this
file. It must be the first line of
this file.

*

* MATL - Material of the control pipe

* DIAM - Nominal diameter of the control pipe

* MCTQ - MCT core quantity

* SCHE - Schedule of the control pipe

* THIK - thickness of the control pipe wall

* ODIA - outer diameter of MCT/control pipe

* WGHT - unit length weight of MCT/control pipe

*

*

ALBS 4 1.0 6 10K 0.132

ALBS 5 1.0 8 10K 0.185

ALBS 6 1.0 10 10K 0.237

ALBS 8 1.2 12 10K 0.341

ALBS 10 1.2 15 10K 0.435

ALBS 15 1.2 20 10K 0.595

ALBS 4 1.2 6 40K 0.162

ALBS 5 1.2 8 40K 0.215

ALBS 6 1.2 10 40K 0.279

ALBS 8 1.5 12 40K 0.416

ALBS 10 1.5 15 40K 0.534

ALBS 15 1.5 20 40K 0.732

ALBS 4 1.2 6 70K 0.152

ALBS 5 1.4 8 70K 0.244

ALBS 6 1.6 10 70K 0.365

ALBS 8 1.6 12 70K 0.439

ALBS 10 1.8 15 70K 0.627

ALBS 15 2.0 20 70K 0.95

ALBS 4 1.5 6 140K 0.178

ALBS 5 1.8 8 140K 0.295

ALBS 6 2.0 10 140K 0.422

ALBS 8 2.2 12 140K 0.569

ALBS 10 2.5 15 140K 0.825

ALBS 15 3.0 20 140K 1.346

CUNU 4 1.0 6 10K 0.14

List of Form Parts
Control Pipe Default Auto-selection File

CUNU	5	1.0	8	10K	0.196
CUNU	6	1.0	10	10K	0.251
CUNU	8	1.2	12	10K	0.361
CUNU	10	1.2	15	10K	0.462
CUNU	15	1.2	20	10K	0.631
CUNU	4	1.2	6	40K	0.162
CUNU	5	1.2	8	40K	0.228
CUNU	6	1.2	10	40K	0.295
CUNU	8	1.5	12	40K	0.441
CUNU	10	1.5	15	40K	0.566
CUNU	15	1.5	20	40K	0.776
CUNU	4	1.2	6	70K	0.161
CUNU	5	1.4	8	70K	0.258
CUNU	6	1.6	10	70K	0.376
CUNU	8	1.6	12	70K	0.465
CUNU	10	1.8	15	70K	0.664
CUNU	15	2.0	20	70K	1.007
CUNU	4	1.5	6	140K	0.189
CUNU	5	1.8	8	140K	0.312
CUNU	6	2.0	10	140K	0.447
CUNU	8	2.2	12	140K	0.603
CUNU	10	2.5	15	140K	0.874
CUNU	15	3.0	20	140K	1.426
COPPER4		1.2	6	10K	0.161
COPPER5		1.2	8	10K	0.228
COPPER6		1.2	10	10K	0.295
COPPER8		1.2	12	10K	0.362
COPPER10		1.4	15	10K	0.532
COPPER15		1.6	20	10K	0.822
COPPER4		1.4	6	40K	0.18
COPPER5		1.4	8	40K	0.258
COPPER6		1.6	10	40K	0.376
COPPER8		1.8	12	40K	0.513
COPPER10		1.8	15	40K	0.664
COPPER15		2.2	20	40K	1.095
COPPER4		1.6	6	70K	0.197
COPPER5		1.8	8	70K	0.312
COPPER6		2.0	10	70K	0.447
COPPER8		2.3	12	70K	0.623
COPPER10		2.5	15	70K	0.874
COPPER15		3.0	20	70K	1.424
COPPER4		2.0	6	140K	0.224
COPPER5		2.5	8	140K	0.384
COPPER6		3.0	10	140K	0.587
COPPER8		3.5	12	140K	0.832
COPPER10		4.0	15	140K	1.203
COPPER15		5.0	20	140K	2.096
STEEL	10	2.35	17.3	SPP	
STEEL	16	2.65	21.7	SPP	
STEEL	10	2.3	17.3	40	
STEEL	16	2.8	21.7	40	
STEEL	10	3.2	17.3	80	
STEEL	16	3.7	21.7	80	
STEEL	16	4.7	21.7	160	

SUS	6	1.2		10.5	10S	
SUS	8	1.65		13.8	10S	
SUS	6	1.5		10.5	20S	
SUS	8	2.0		13.8	20S	
SUS	6	1.7		10.5	40S	
SUS	8	2.2		13.8	40S	
SUS	6	2.4		10.5	80S	
SUS	8	3.0		13.8	80S	
S304	6	0.5	1	9	160	0.00015DS304-6X0.5T-1C
S304	8	0.5	1	11	120	0.0002DS304-8X0.5T-1C
S304	8	1.0	1	11	240	0.00028DS304-8X1T-1C
S304	10	0.8	1	13	160	0.0003DS304-10X0.8T-1C
S304	10	1.0	1	13	200	0.00034DS304-10X1T-1C
S304	12	0.8	1	15	130	0.00036DS304-12X0.8T-1C
S304	12	1.0	1	15	160	0.00041DS304-12X1T-1C
S316	6	0.5	2	21	200	0.0006DS316-6X0.5T-2C
S316	8	0.5	2	24	150	0.00073DS316-8X0.5T-2C
S316	8	1.0	2	24	300	0.00089DS316-8X1T-2C
S316	10	0.8	2	29	190	0.0011DS316-10X0.8T-2C
S316	10	1.0	2	29	240	0.00118DS316-10X1T-2C
S316	12	0.8	2	36	160	0.00138DS316-12X0.8T-2C
S316	12	1.0	2	36	200	0.0015DS316-12X1T-2C
S316L	6	0.5	4	25	200	0.0006DS316L-6X0.5T-4C
S316L	8	0.5	4	28	150	0.00073DS316L-8X0.5T-4C
S316L	8	1.0	4	28	300	0.00089DS316L-8X1T-4C
S316L	10	0.8	4	36	190	0.0011DS316L-10X0.8T-4C
S316L	10	1.0	4	36	240	0.00118DS316L-10X1T-4C
S316L	12	0.8	4	41	160	0.00138DS316L-12X0.8T-4C
S316L	12	1.0	4	41	200	0.00237DS316L-12X1T-4C
S316L	6	0.5	6	25	200	0.0006DS316L-6X0.5T-4C
S316L	8	0.5	6	28	150	0.00073DS316L-8X0.5T-4C
S316L	8	1.0	6	28	300	0.00089DS316L-8X1T-4C
S316L	10	0.8	6	36	190	0.0011DS316L-10X0.8T-4C
S316L	10	1.0	6	36	240	0.00118DS316L-10X1T-4C
S316L	12	0.8	6	41	160	0.00138DS316L-12X0.8T-4C
S316L	12	1.0	6	41	200	0.00237DS316L-12X1T-4C
COPPER6		0.8	1	9	160	0.0002DC-6X0.8T-1C
COPPER6		0.8	2	21	160	0.0007DC-6X0.8T-2C
COPPER6		0.8	4	25	160	0.0011DC-6X0.8T-4C
COPPER6		0.8	6	30	160	0.00134DC-6X0.8T-6C
COPPER8		1	1	11	116	0.00031DC-8X1T-1C
COPPER8		1	2	24	116	0.00094DC-8X1T-2C
COPPER8		1	4	28	116	0.00143DC-8X1T-4C
COPPER8		1	6	33	116	0.00215DC-8X1T-6C
COPPER10		1	1	13	90	0.00037DC-10X1T-1C
COPPER10		1	2	29	90	0.00124DC-10X1T-2C
COPPER10		1	4	36	90	0.00209DC-10X1T-4C
COPPER10		1	6	41	90	0.00257DC-10X1T-6C
CUNU	8	0.7	1	11	170	0.00025DCN-8X.7T-1C
CUNU	8	0.7	2	24	170	0.00083DCN-8X.7T-2C
CUNU	8	0.7	4	28	170	0.0012DCN-8X.7T-4C
CUNU	8	0.7	6	33	170	0.00192DCN-8X.7T-6C
CUNU	10	1	1	13	135	0.00037DCN-10X1T-1C
CUNU	10	1	2	29	135	0.00124DCN-10X1T-2C

List of Form Parts
Control Pipe Default Auto-selection File

CUNU	10	1	4	36	135	0.00209DCN-10X1T-4C
CUNU	10	1	6	41	135	0.00257DCN-10X1T-6C

Oracle Table Format for Control Pipe Passageway Fittings

The GENERATE CPDATABASE command reads the various parameters and attributes of the existing passageway fittings and supports along the control pipe passageway in the active CADDs parts and write them to the external RDBMS database outside CADDs. The read and write access to the RDBMS is done through the existing SQL HLI interface. Once the attributes of a passageway fitting is written to RDBMS database, the User should use the report generation tools available in the RDBMS to prepare the reports or bill of material outside CADDs. DRAW CPIPE command will use this external RDBMS data to automatically generate drawings for the control pipe passageway fittings and supports. The relational database format of the control pipe passageway fittings and supports in the external RDBMS database is described below. In this version of CADDs, Oracle is the supported RDBMS.

Two scripts are provided to help the User to set up their own Oracle tables.

1. `cpipe/scripts/enroll_cpipe_users`
will allow the system administrator to create account and grant rights on the related Oracle tables.
2. `cpipe/scripts/create_cpipe_tables`
will allow the user to create their own Oracle tables.

Oracle Table Format Sample

Table for CPIPE_FIT_TBL<PROJ>

Field name and size	Datatype	Description
fit_uid	number	fitting ID
fit_pid	number	fitting Part ID(currently not in use)
comp_name	varchar[50]	component name
fittype	number	fitting type number
comp_miptr	number	fitting miptr number
mark	varchar[50]	fitting identification mark
loc_x	number	fitting insertion location x value
loc_y	number	fitting insertion location y value
loc_z	number	fitting insertion location z value
pwlabel	varchar[50]	fitting passageway label value
stage	varchar[50]	fitting stage value
block	varchar[50]	fitting block value(currently not in use)
unit	varchar[50]	fitting units value
form	varchar[50]	fitting form part name
draw	varchar[50]	fitting drawing name(currently not in use)
rel_fit_mark	varchar[50]	relative fitting identification mark
length	number	fitting length
width	number	fitting width
height	number	fitting height
thickness	number	fitting thickness
material	varchar[50]	fitting material
density	number	fitting material density
bend_radius	number	fitting bend radius
bend_ratio	varchar[50]	fitting bend ratio
column_count	number	penetration fitting column count value
row_count	number	penetration fitting row count value
pen_hole_dia	number	penetration fitting hole diameter value
pen_fillet_radius	number	penetration fitting fillet radius value
pen_conn_type	varchar[50]	penetration fitting connection type value
column_gap	number	penetration fitting column gap value
row_gap	number	penetration fitting row gap value
group_count	number	fitting group count value
tier_count	number	fitting tier value
weld_length	number	fitting weld length value

Field name and size	Datatype	Description
edge1	number	strap - distance between fitting edge to bolt centre line
edge2	number	strap - distance between bolt centre line to
		fitting inner edge
		cover - distance between bolt centre line
		to fitting edge
sp_desc	varchar[50]	support description
sp_cen_coor	varchar[400]	support centre line coordinates value
sp_orient_mat	varchar[400]	support orientation matrix
sp_length	number	support leg length
sp_unit_wt	number	support material unit weight
sp_l1	number	distance between cover edge and the first strap center line
sp_l2	number	distance between strap center lines
bolt_desc	varchar[50]	bolt description
ring_desc	varchar[50]	ring description(currently not in use)

Table for CPIPE_LABEL_TBL<PROJ>

Field name and size	Datatype	Description
pwlabel	varchar[50]	control pipe passageway label
source	varchar[50]	control pipe source
destination	varchar[50]	control pipe destination
quantity	number	control pipe quantity
diameter	number	control pipe nominal diameter
odia	number	control pipe outer diameter
thickness	number	control pipe thickness
material	varchar[50]	control pipe material
tag	varchar[50]	control pipe identification tag
length	number	control pipe length
tier	number	control pipe tier
mct	number	control pipe mct value

Table For CPIPE_REL_TBL<PROJ>

Field name and size	Datatype	Description
pwlabel	varchar[50]	control pipe passageway label
fit_mark	varchar[50]	fitting identification mark
tag	varchar[50]	control pipe identification tag

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